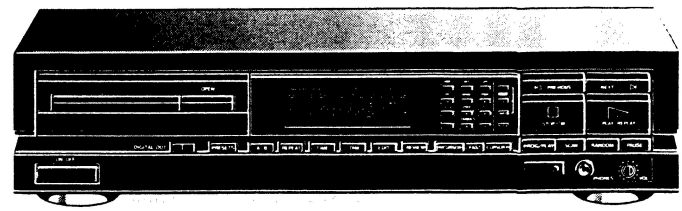
# Compact disc player CD634/00B/05B/07B/10B
# CD834/00B

Service
Service
**Service**



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# Service Manual

COMPACT disc DIGITAL AUDIO

**CONTENTS**


1. Technical specifications, Controls and connections, Service hints & tools.
2. Disassembly hints, Mechanical partslist, Exploded view, Faultfinding procedure.
3. Block diagram, Circuit diagrams and panel data, Wiring diagram.
4. Partslists.


(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiagoidentici a quelli specificati.

(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(SF) Varo!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

(S) Varning!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

CLASS 1
LASER PRODUCT
3122 110 03420

Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrees, seuls habilités à réparer votre appareil en panne".


Subject to modification
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Printed in The Netherlands


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PHILIPS


Published by Consumer Electronics
CS 30 102

## TECHNICAL DATA

### General

| | |
|---|---|
| 1. Mains voltage | : 220, 240 Volt (+/– 10%)<br>110, 117 V (+/– 10%) |
| 2. Mains frequency | : 50-60 Hz |
| 3. Mains voltage selection | : By soldering (220/240 Volt-version)<br>By changing transformer (110/117 Volt-version) |
| 4. Power consumption mains, operated | : 15 W |

### External RC-5 connection

Specification: V-in Low: from -2,0 V to +1,6 V
V-in High: from +3 V to +7,5 V
R-in: from 47 k to 68 k

### Line output (Fixed)

| | |
|---|---|
| 1. Number of channels | : 2 |
| 2. Output voltage | : 2 Vrms +/– 2 dB |
| 3. Unbalance Left-Right | : max. +/– 0,25 dB |
| 4. Output resistance | : 200 Ohm |
| 5. Amplitude linearity | : max. +/– 0,15 dB from 20 Hz to 20 kHz |
| 6. Phase non-linearity | : max. +/– 1,0° from 20 Hz to 20 kHz |
| 7. Signal to noise ratio | : min 90 dB from 20 Hz to 20 kHz |
| 8. Dynamic range (–60 dB) | : min 88 dB from 20 Hz to 20 kHz |
| 9. Total harmonic distortion + noise | : min -84 dB from 20 Hz to 20 kHz |
| 10. Intermodulation distortion | : max. 0.0064% (min -84 dB) from 20 Hz to 20 kHz |
| 11. Out-band attenuation | : min 60 dB |
| 12. Channel separation | : min 86 dB from 20 Hz to 20 kHz |
| 13. Muting during random access | : min 90 dB from 20 Hz to 20 kHz |
| 14. Automatic switched de-emphasis with time constants | 15/50 us |

### Line output (Variable)

| | |
|---|---|
| 1. Number of channels | : 2 |
| 2. Output voltage | : 0-2 Vrms |
| 3. Output resistance | : 200 Ω |
| 4. Amplitude linearity | : max. 0,2 dB from 20 Hz to 20 kHz |
| 5. Phase non-linearity | : max. 2° from 20 Hz to 20 kHz |
| 6. Signal to noise ratio | : min. 85 dB from 20 Hz to 20 kHz |
| 7. Dynamic Range (–60 dB) | : min. 80 dB from 20 Hz to 20 kHz |
| 8. Total harmonic distortion + noise | : min. 82 dB from 20 Hz to 20 kHz |
| 9. Intermodulation distortion | : min. 82 dB from 20 Hz to 20 kHz |
| 10. Outband attenuation | : min. 60 dB |
| 11. Channel separation | : min. 84 dB |
| 12. Muting during random access | : min. 90 dB from 20 Hz to 20 kHz |
| 13. Automatic switched deemphasis with time constants | 15/50 µs |

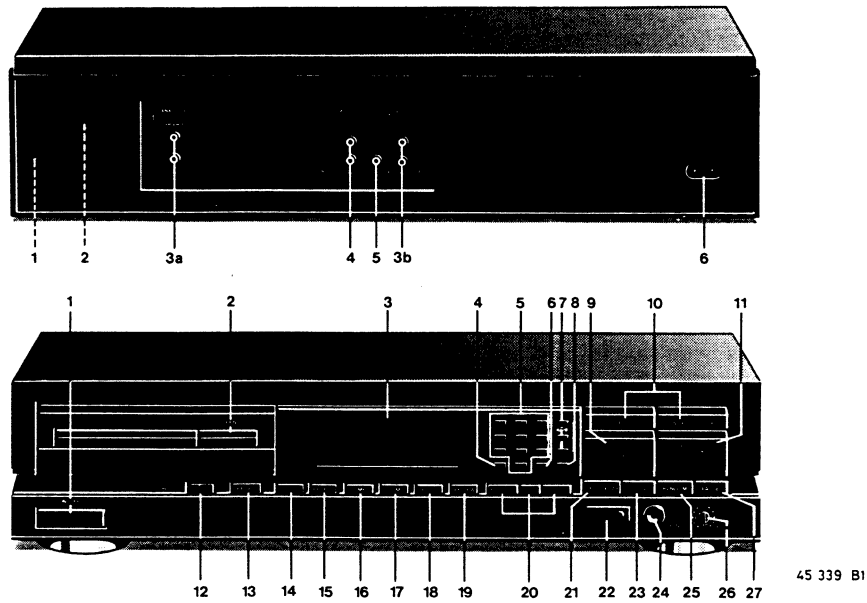
### Headphone (Variable)

| | |
|---|---|
| 1. Output voltage | : Max. 7 Vrms +/– 2 dB |
| 2. Output resistance | : 150 Ohm |
| 3. Load impedance range | : 30 Ohm tp 600 kOhm |
| 4. Output power | : 0 to 50 mW into 30 Ohm load<br>0 to 90 mW into 150 Ohm load<br>0 to 50 mW into 600 Ohm load |
| 5. Signal to noise ratio | : Min 85 dB from 20 Hz to 20 kHz |
| 6. Dynamic range | : Min 85 dB from 20 Hz to 20 kHz |
| 7. Total harmonic distortion + noise | : 80 dB from 20 Hz to kHz |
| 8. Intermodulation distortion | : 80 dB from 20 Hz to 20 kHz |
| 9. Channel separation | : min 70 dB from 20 Hz to 20 kHz |

### Dimensions and weight

| | | |
|---|---|---|
| 1. Place and height of feet acc. to Philips specification | | |
| 2. Apparatus tray closed | WxDxM | : 420 x 280 x 90/104 mm |
| 3. Apparatus tray open | WxDxM | : 420 x 423 x 90/104 mm |
| 4. Weight | | : 4 kg |

## CONTROLS AND CONNECTIONS




**front of player :**

1. **ON/OFF** : Switching the set on and off.
2. **OPEN** : To open the loading. The loading closes when the front is pressed briefly.
3. **display**
4. **C**(lear) :
   - Erasing track numbers from a program.
   - Erasing FTS selections.
   - Erasing names from the title memory.
5. **Digit/alphabet keys** :
   - Selecting another track during play.
   - Selecting a track to start play with.
   - Selecting tracks when compiling a program.
   - Entering the recording time when making a tape recording.
   - Naming CDs and track numbers.
6. **S**(tore) :
   - Storing tracks in a program.
   - Storing a program in the FTS memory.
   - Storing personal preferred settings.
   - Storing names in the title memory.
7. **FTS 1 & 2** (Favourite Track Selection) : activating the FTS memory.
8. **TITLE** :
   - Naming discs and track numbers.
   - Calling up a name you have entered.
9. **STOP/CM** :
   - Stopping play.
   - Erasing a program (CM = Clear Memory).
10. **PREVIOUS** and **NEXT** :
    - Selecting another track during play.
    - Selecting a track to start play with.
    - Entering the record time when making a tape recording.
11. **PLAY/REPLAY** :
    - Starting play.
    - Returning to the beginning if a disc.
12. **DIGITAL OUT** :
    For switching the digital output (DIGITAL OUTPUT COAX) on and off.
    Only use this key when you connect the player to other digital equipment via this output.
13. **PRESETS** : Entering personal preferred settings.
14. **A-B** : Setting the starting and the stopping point of a passage to be repeated.
15. **REPEAT** : Repeating play.
16. **TIME** : Selecting the time information you want to see.
17. **DIM** : Adjusting the brightness of the display.
18. **EDIT** : Entering the recording time when making a tape recording.
19. **REVIEW** : Checking a program.
20. **<<CURSOR** and **CURSOR>>** :
    - Fast search to a particular passage. When used in conjunction with **FAST**, the search speed is increased.
    - Moving the cursor when entering titles and presets.
21. **PROG**(ram)/**PLAY** : Direct programming or immediate selection and playback of track numbers.
22. **Remote eye** : Receives the signals from the remote control.
23. **SCAN** : Automatically plays the beginning of each track.
24. **PHONES** : Connecting headphones.
25. **RANDOM** : Playing in random order.
26. **VOL**(ume) : Adjusting the headphone volume.
27. **PAUSE** : Interrupting play.

**Back of player :**

1. **Mains fuse holder** (not for all versions)
2. **Voltage selector** (not for all versions)
3. **ANALOG OUTPUT** :
   - **Variable** : To connect te player to an amplifier or a HiFi system **without** its own remote control.
   - **Fixed** : To connect the player to a PHILIPS amplifier or a HiFi system **with** its own remote control.
4. **REMOTE CONTROL OUT IN** :
   Use this connection for :
   - Connecting up the equipement when you are incorporating the player in a HiFi system with its own remote control.
   - Connecting the remote control receiver EM2200, available as an accessory. (Not available in the U.K.)
5. **DIGITAL OUTPUT COAX** :
   For digital signal processing or future applications such as CD-I. This output supplies a digital signal an can therefore only be connected to an input suitable for this signal. Use here a lead with one plug on eiter end. **Never** connect this socket to a non digital input of an amplifier, such as AUX, CD, TAPE, PHONO, etc.
6. **Connection for the mains lead.**

## SERVICING HINTS

In the set chip components have been applied.
For disassembly and assembly of chip components see the figure below.

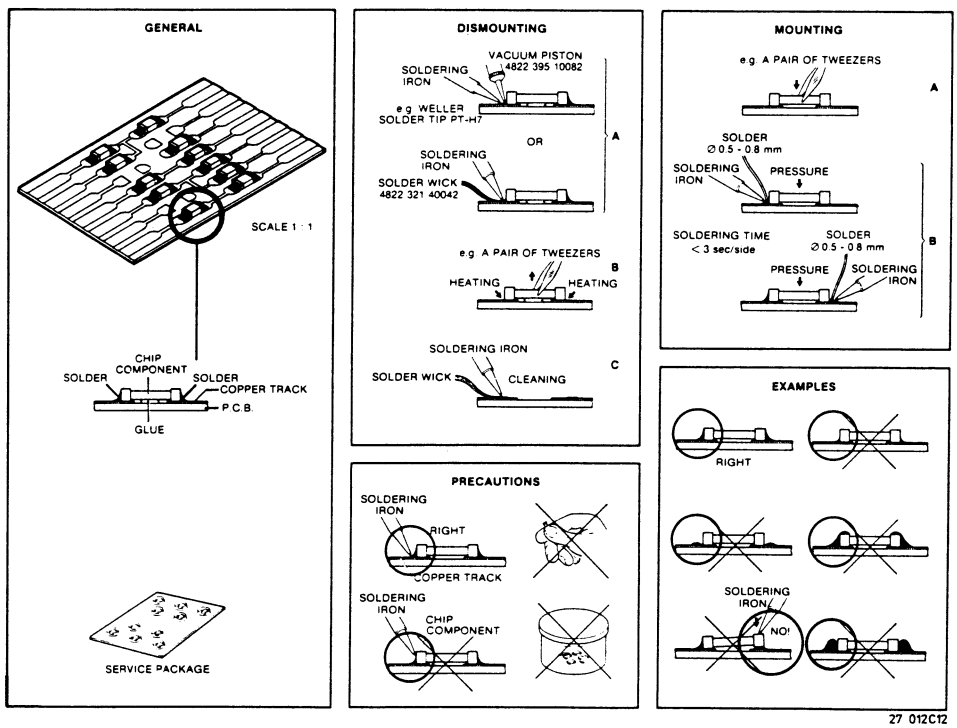
The disc should always rest properly on the turntable.
To achieve this a disc hold-down has been mounted in a bracket of the tray mechanism.
If the tray mechanism has to be disassembled for servicing, a seperate disc hold-down should be used.
(See drawing "Service disc hold-down")
The set can function normally then.
Code number of the disc hold-down is 4822 462 50383.

When the tray mechanism has been disassembled, the tray switch must be activated immediatly after pressing the play button in order to ensure normal operation.

To avoid electric shock during servicing, it is recomended to mount an insulation cover over the mains leads on the servo & decoder panel. See drawing MDA 02548. The cover can be ordered under codenumber 4822 444 60655.

## SERVICE TOOLS

| | |
|---|---|
| Audio signals disc | 4822 397 30184 |
| Disc without errors (test disc 5) + disc with DO errors, black spots and fingerprints (test disc 5A) | 4822 397 30096 |
| Disc 65 min 1 kHz without pause | 4822 397 30155 |
| Max. diameter disc(58.0 mm) | 4822 397 60141 |
| Torx screwdrivers | |
| Set (straight) | 4822 395 50145 |
| Set (square) | 4822 395 50132 |
| 13th order filter | 4822 395 30204 |
| Service cable (4p) | 4822 321 21284 |
| Service flexfoil (14p) | 4822 322 40066 |
| Service connector (14p) | 4822 267 50676 |
| Green LED CQY G11 | 5322 130 32182 |
| Insulation cover | 4822 444 60655 |



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### (GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

### ESD

### (NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

### (F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

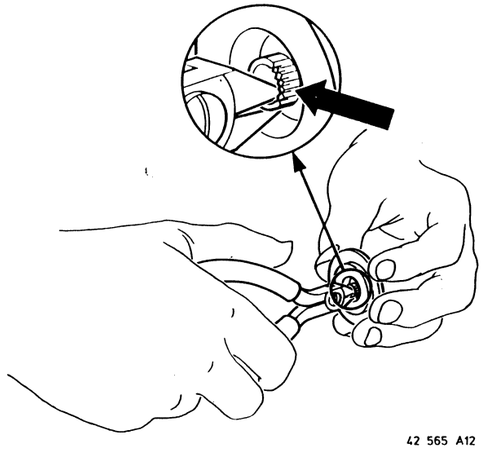
### (D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

### (I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

## SERVICE DISC HOLDDOWN



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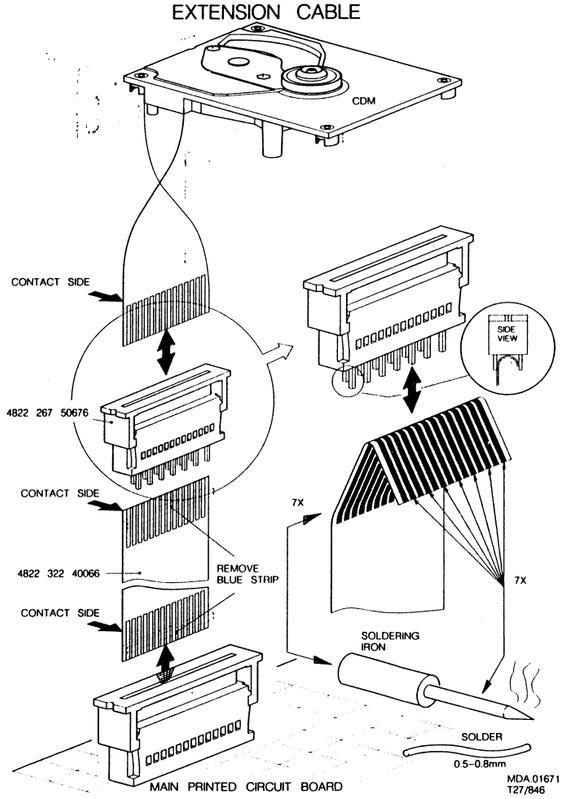
**Compose a service Disc hold-down in the following way**

- Cut in the most inner ring of a disc hold-down (4822 462 50383) with small and sharp nippers, see fig. above.
- Enlarge the diameter of the innermost ring slightly with the hind part of a pencil or ballpoint, so that it jams onto the turntable with sufficient force.
- If the jamming force decreases after certain time of use, the diameter has to be enlarged with a pencil or ballpoint again.

## SERVICE FOIL FOR CDM

EXTENSION CABLE

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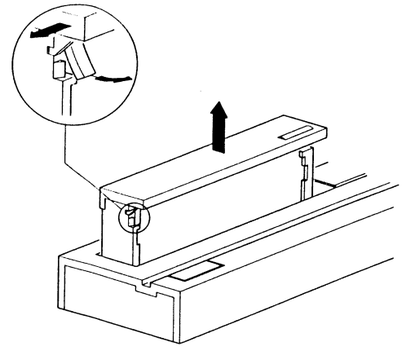
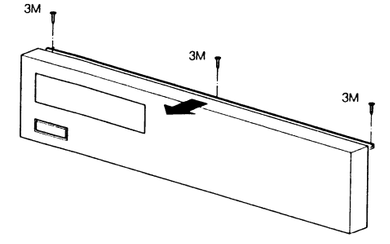
## CABINET DISASSEMBLY HINTS

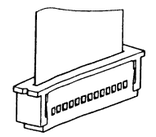
**A Remove 2 front feet**

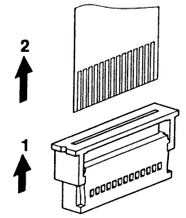
**B**



**C**



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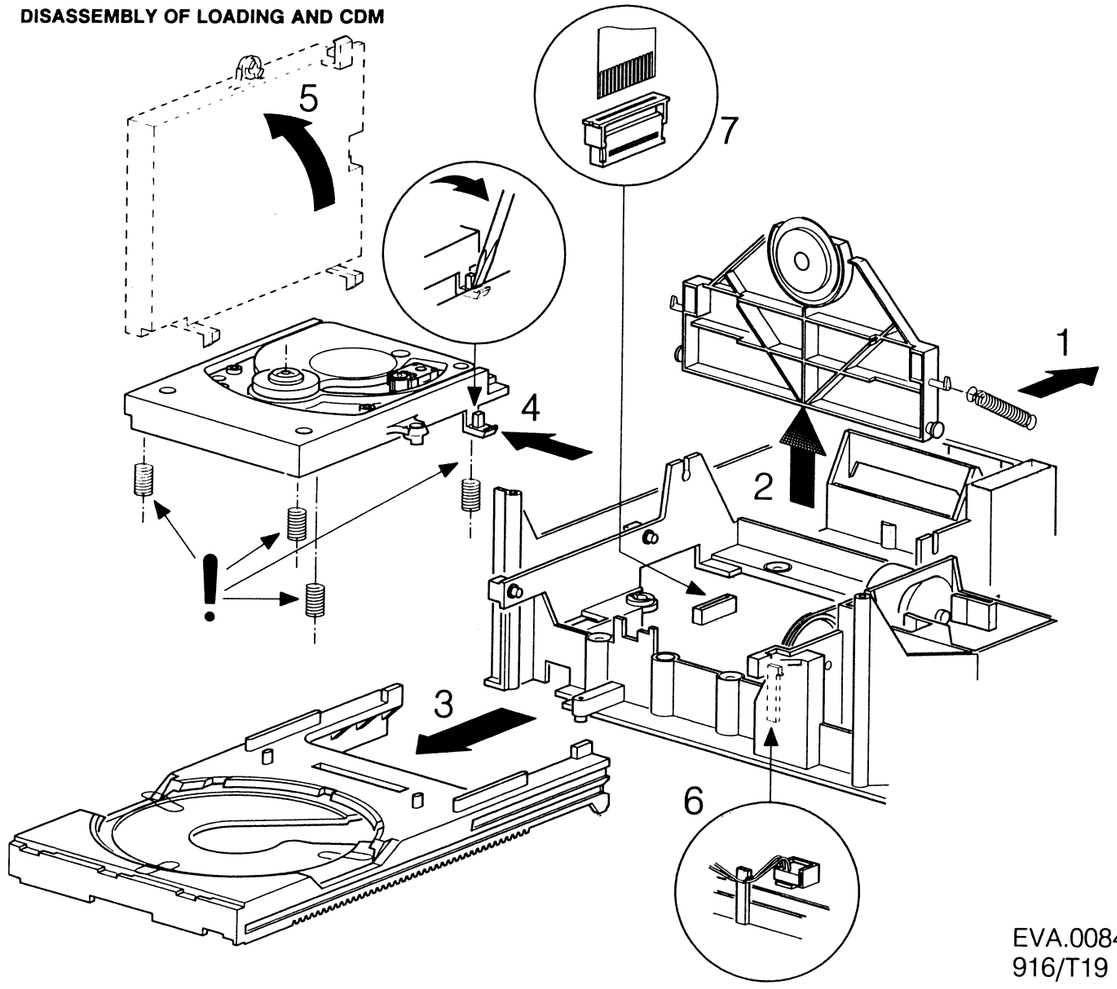
**DISASSEMBLY OF LOADING AND CDM**

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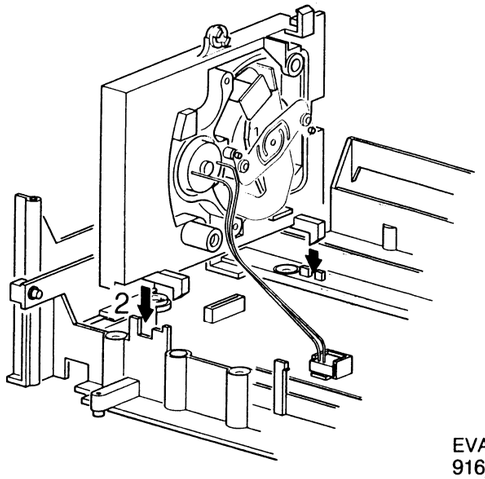
916/T19

**PLAY SERVICE POSITION**

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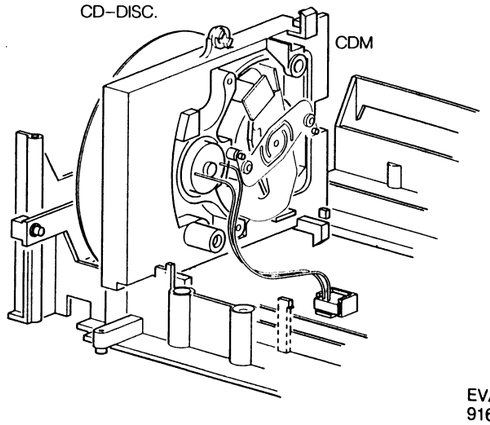
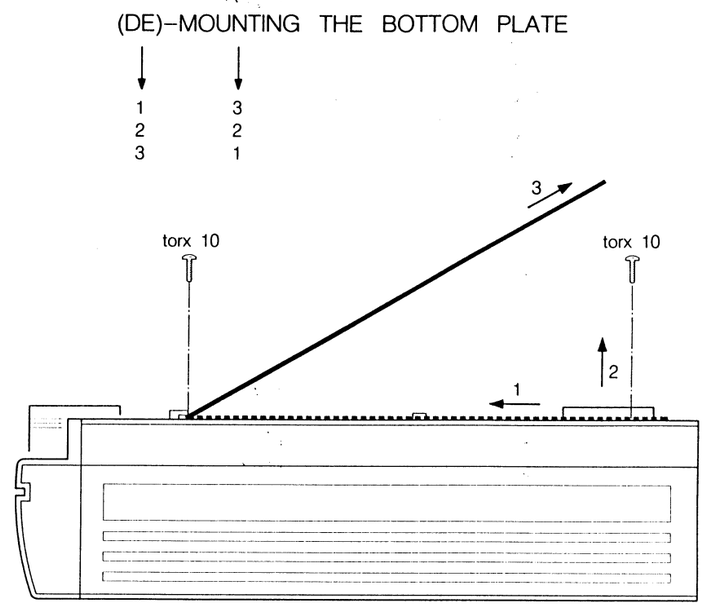
916/T19




EVA.00849
916/T19

**FOR ACCESS OF THE MAIN PCB, REMOVE THE BOTTOM PLATE**

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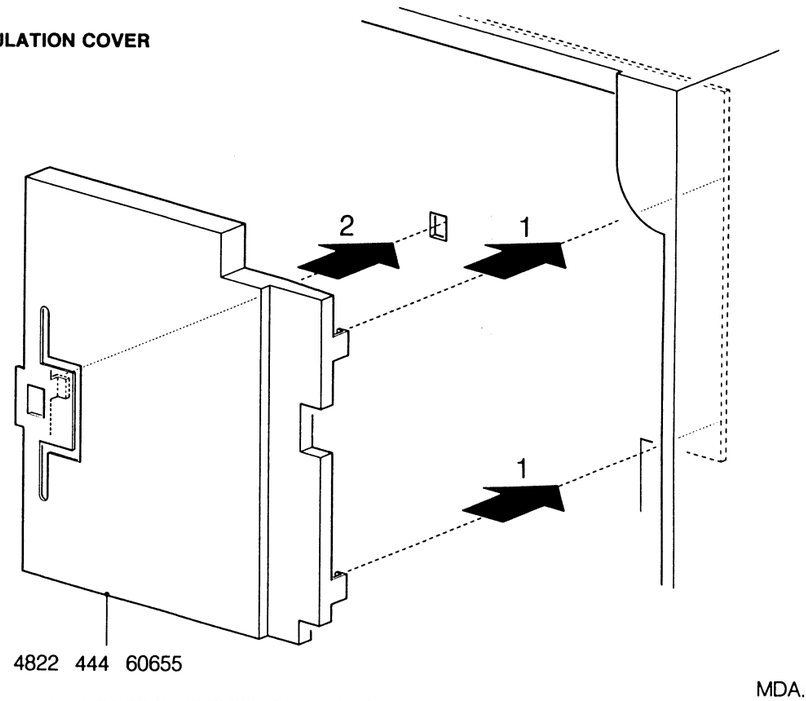
T28/023

**INSULATION COVER**

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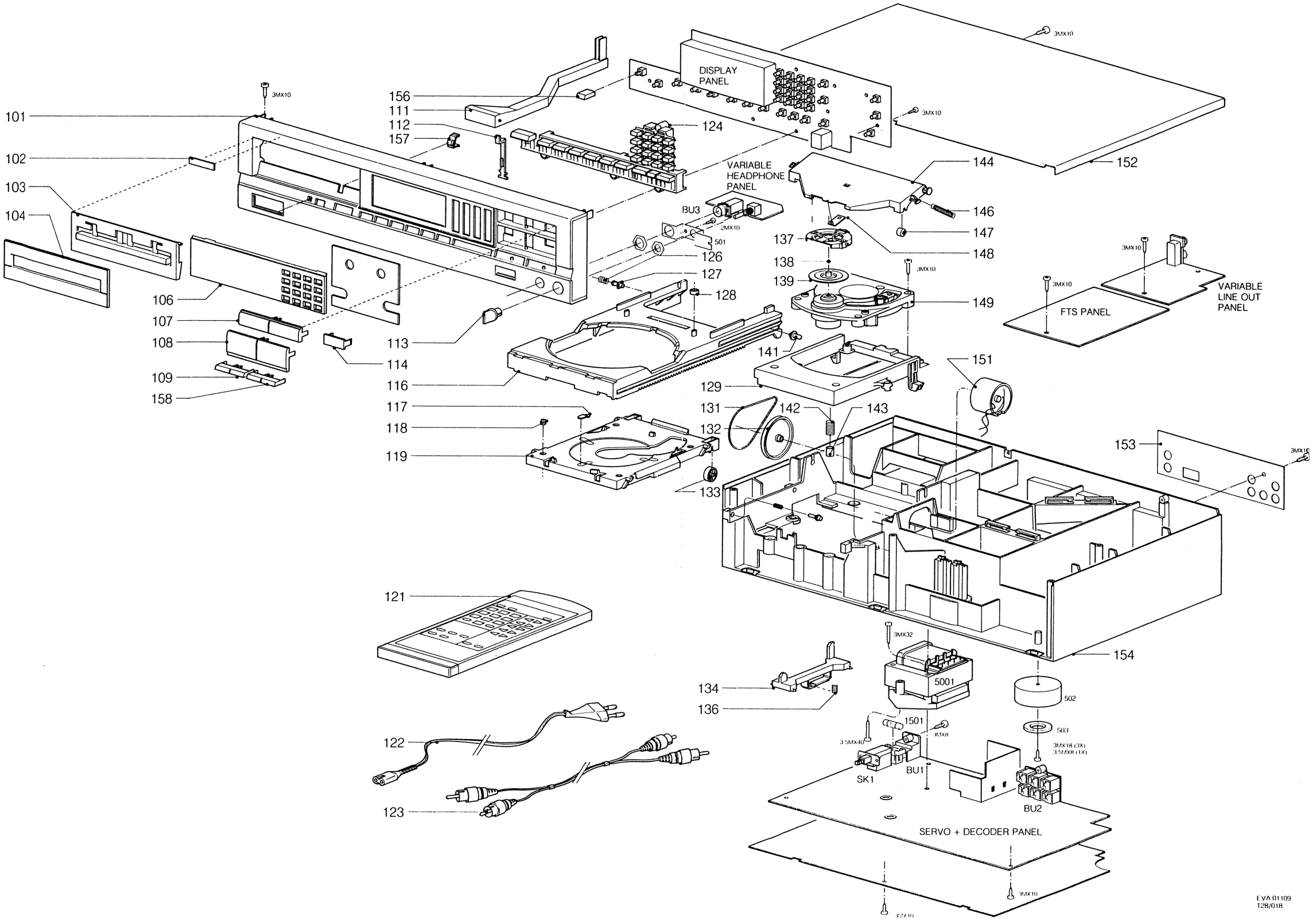
T02/007

TO AVOID ELECTRIC SHOCK DURING SERVICING MOUNT INSULATION COVER OVER MAINS LEADS ON MAIN PANEL

## MECHANICAL PARTSLIST

| | | |
|---|---|---|
| 101 | 4822 444 40388 | CD634 |
| 101 | 4822 444 40401 | CD834 |
| 102 | 4822 459 10803 | |
| 103 | 4822 444 60626 | |
| 104 | 4822 444 40389 | |
| 106 | 4822 410 60101 | |
| 107 | 4822 410 60094 | |
| 108 | 4822 410 60095 | |
| 109 | 4822 410 60102 | |
| 111 | 4822 410 60105 | |
| 112 | 4822 402 61249 | |
| 113 | 4822 411 61674 | |
| 114 | 4822 381 11051 | |
| 116 | 4822 444 50603 | |
| 117 | 4822 325 50176 | |
| 118 | 4822 325 50177 | |
| 119 | 4822 466 92251 | |
| 121 | 4822 218 10287 | |
| 122 | 4822 321 10457 | /00B |
| 122 | 4822 321 10251 | /05B |
| 122 | 4822 321 10455 | /07B |
| 122 | 4822 321 10523 | /10B |
| 123 | 4822 321 22832 | |
| 124 | 4822 410 60098 | |
| 126 | 4822 492 52094 | |
| 127 | 4822 402 61252 | |
| 128 | 4822 532 51756 | |
| 129 | 4822 402 61196 | |
| 131 | 4822 358 10115 | |
| 132 | 4822 528 81329 | |
| 133 | 4822 528 90638 | |
| 134 | 4822 402 50276 | |
| 136 | 4822 492 52123 | |
| 137 | 4822 402 61207 | |
| 138 | 4822 520 40177 | |
| 139 | 4822 532 52234 | |
| 141 | 4822 402 61253 | |
| 142 | 4822 492 51902 | |
| 143 | 4822 466 61587 | |
| 144 | 4822 444 60568 | |
| 146 | 4822 492 32883 | |
| 147 | 4822 528 70651 | |
| 148 | 4822 466 92257 | |
| 149 | 4822 691 30209 | |
| 151 | 4822 361 21258 | |
| 152 | 4822 444 30417 | |
| 153 | 4822 444 30416 | |
| 154 | 4822 464 50805 | |
| 156 | 4822 410 60104 | |
| 157 | 4822 381 11052 | |
| 158 | 4822 410 60099 | |

**EXPLODED VIEW**

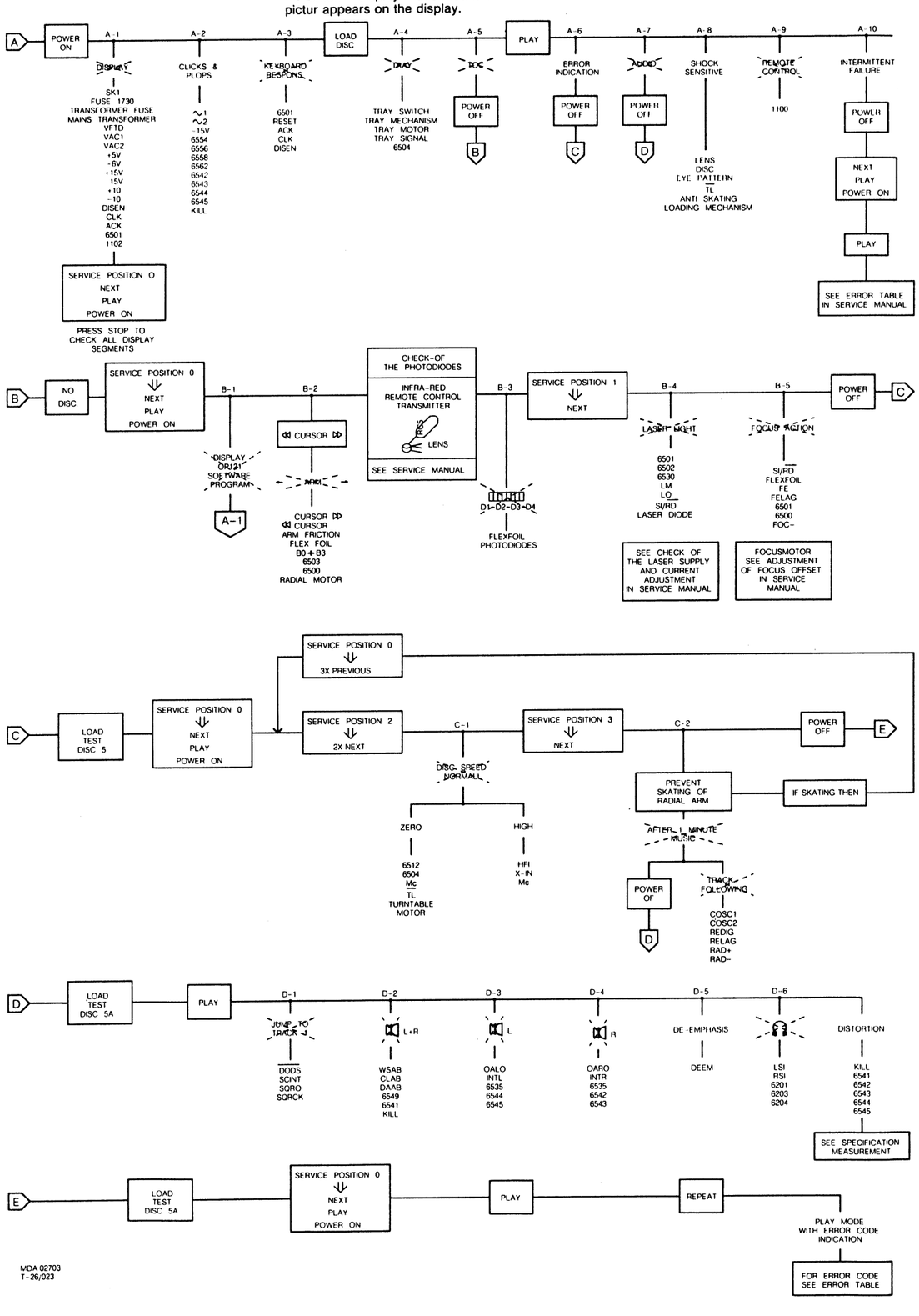


TROUBLE SHOOTING (FAULT FINDING TREE)

Start-up procedure

Follow the path of the faultfinding tree beginning at the top left. Perform the actions you come across in the various blocks. Look at the various side branches to find out if the information you see there applies to your problem. If, for instance, you find the indication display this means that no pictur appears on the display.

If you establish this fault, follow the branch and perform the recommended actions. Check the signals mentioned in a number of braches further reference is made to measurements you could carry out. These measurements are explained in several tables further on in this manual.




MDA 02703
T-26/023



## B-3 CHECK OF THE PHOTODIODES

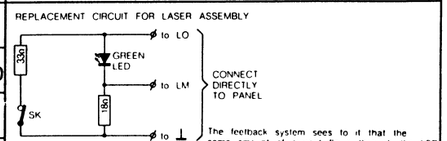
| Step | Signal | Mode | ◇ | ∠ | ▭ | ⎍ | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | D2<br>D1<br>D3<br>D4 | power on | 4<br>6<br>7<br>8 | – | – | signal<br>4E6E7E8 | Signal depends on Distance lens ↔ IR LED of remote control |

T-22811A

## B-4 CHECK OF LASER SUPPLY

The laser, the lasersupply plus the monitor diode form a feedback system.
A defect in the lasersupply may result in the destruction of the laser. If, in that case, the laser is replaced, (= complete C.D.M.-unit) the new laser will also become defective. However, it is impossible to check and repair a feedback system if a link is missing. For this reason the laser supply can be checked with teh replacement circuit for laser assembly.

| Step | Signal | Mode | ◇ | ▭ | Remarks |
|---|---|---|---|---|---|
| 1 | LO | serv. pos. 2<br>SK | 9 V | 1.8<V <2.3 | REPLACEMENT CIRCUIT FOR LASER ASSEMBLY |
| | LM | | 1 V | 170<mV <220 | |
| 2 | LO | serv. pos. 2<br>SK | 9 V | 1.8<V <2.3 | |
| | LM | | 11 V | 170<mV <220 | |
| 3 | LO | Power on | 9 V | 0V ± 0.2V | No light |




The feetback system sees to it that the same amount of current flows through the LED When SK is open and when SK is closed the LED emits little light

After opening SK, the led will emit more light for a short moment

T-22811B

## B-4 LASER CURRENT ADJUSTMENT

| STEP | SIGNAL | MODE | ◇ | ∠ | ⎍ | ▭ | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | -- | POWER OFF | -- | -- | -- | -- | CHECK IF FLEX-FOIL IS PROPERLY CONNECTED |
| 2 | -- | POWER OFF | 11 Ω | R3520 | 1kΩ +10% -0 | -- | PRE ADJUSTMENT OHMIC VALUE |
| 3 | -- | POWER OFF | -- | R3568 | -- | -- | SET TO MID-POSITION |
| 4 | LASER CURRENT<br>VOLTAGE ACROSS R3500 | TEST DISC 5A<br>PLAY | 1 V 2<br>mV DC | -- | ⩾15mV | -- | IF < 15mV THEN GO TO STEP 3 AND SET R3515 TO 1/4 OR 3/4. TRY AGAIN |
| 5 | LASER CURRENT<br>VOLTAGE ACROSS R3500 | TEST DISC 5A<br>PLAY | 1 V 2<br>mV DC | R3520 | 50mV | -- | -- |
| 6 | FE-LAG | N<br>TEST DISC 5A<br>TRACK 1 PLAY | 27 V<br>mV DC | R3568 | 400mV | -- | FINE ADJUSTMENT |

MDA 02673
128/020

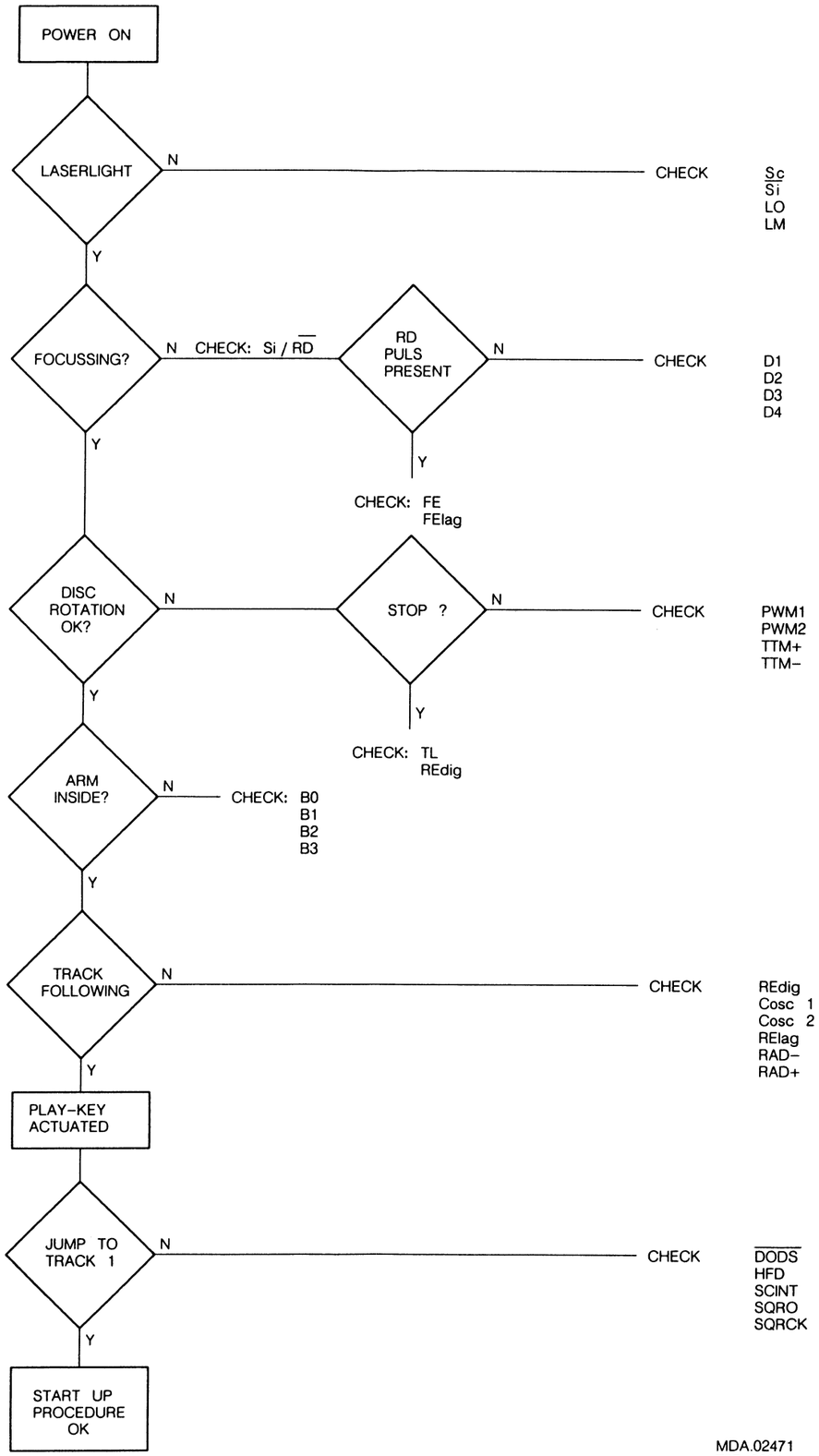
## B-5 ADJUSTMENT OF FOCUS-OFFSET

| Step | Signal | Mode | ◇ | ∠ | ▭ | ⎍ | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | – | Power on<br>no disc | – | R3568 | – | – | adjust for optical mid-position of the focus motor |
| 2 | FE LAG | Play<br>Test disc 5<br>Track 1 | 27 | R3568 | 400mV ±<br>40 mV DC | – | fine adjustment |

T-22811D

2-4

## START UP PROCEDURE

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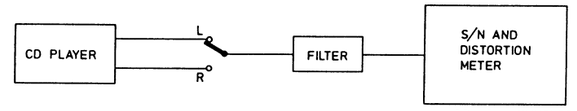
T07–9001

## SPECIFICATIONS MEASUREMENT

| Signal | Mode | ◇ | | | Remarks |
|---|---|---|---|---|---|
| BU2-L | Test disc 3, play total harmonic distorsion | filter output | See spec. | | See drawing 30459A12 |
| BU2-R | Test disc 3, play total harmonic distorsion | filter output | See spec. | | See drawing 30459A12 |
| BU2-L | Test disc 3, play signal-to-noise ratio | filter output | See spec. | | See drawing 30459A12 |
| BU2-R | Test disc 3, play signal-to-noise ratio | filter output | See spec. | | See drawing 30459A12 |

T-22255C

## SPECIFICATION MEASUREMENT




30 459 A12

## ERROR CODE TABLE

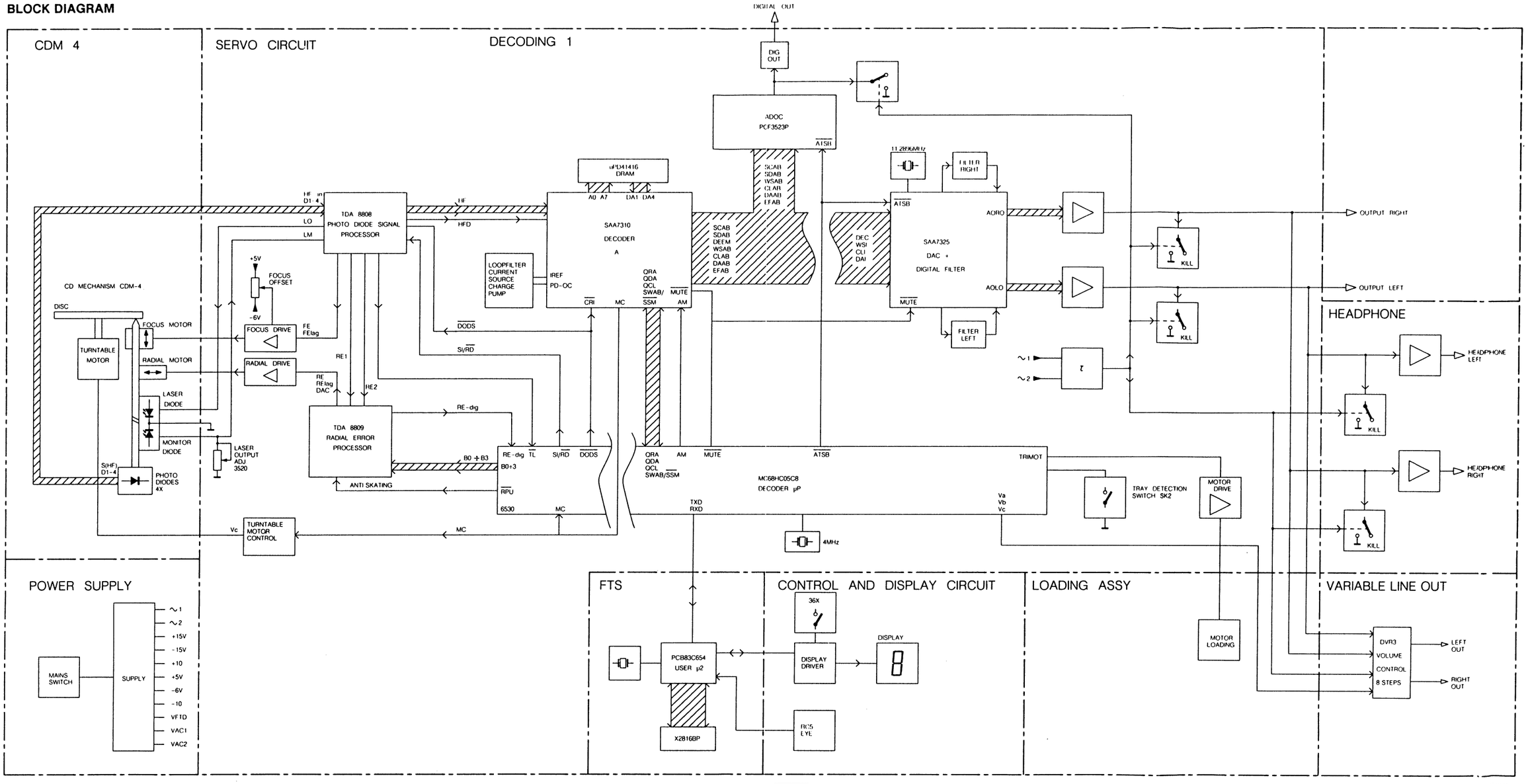
| | |
|---|---|
| ERROR 01 | Tray error |
| ERROR 02 | Focus error |
| ERROR 03 | Radial error |
| ERROR 04 | Too many TL |
| ERROR 05 | TL low to long |
| ERROR 06 | Jump error |
| ERROR 07 | Subcode error |
| ERROR 08 | TOC error |

## OPERATING ERRORS

| | |
|---|---|
| ERROR 10 | Selected track not accessible |
| ERROR 11 | Relative time not accessible |
| ERROR 12 | Absolute time not accessible |
| ERROR 30 | Next operated during last track without repeat |
| ERROR 31 | Previous operated during last track without repeat |
| ERROR 42 | Selected track does not exist |

3-1

## BLOCK DIAGRAM

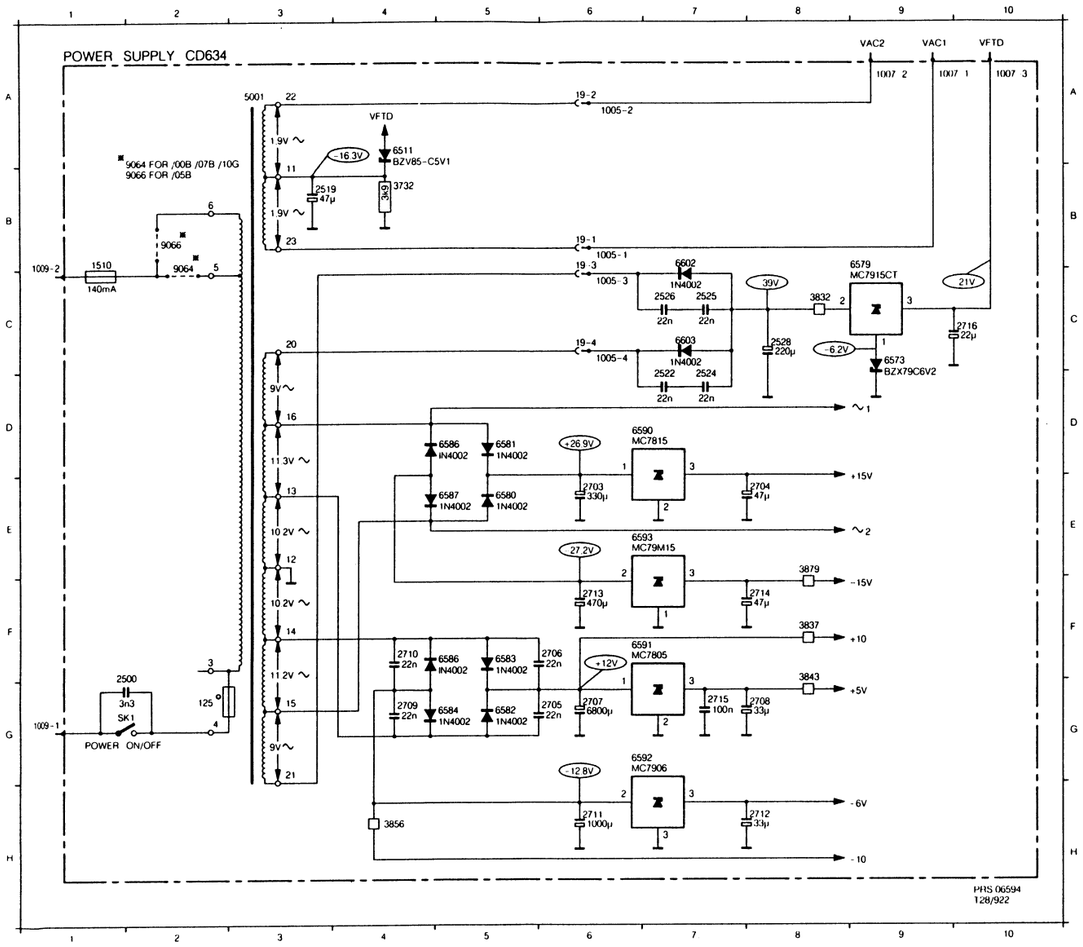


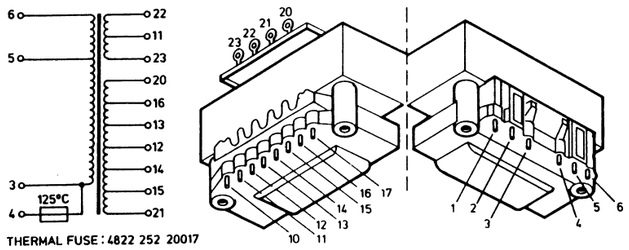

PRS 06691
1 - 26/023

| | | |
|---|---|---|
| AGC | – | Automatic Gain Control |
| B0-B3 | – | Control bits for radial circuit |
| BEQ | – | Equalizer reference current input |
| BGC | – | DC and LF gain control reference input |
| Cosc1 | – | Capacitor wobble oscillator |
| Cosc2 | – | Capacitor wobble oscillator |
| DEC | – | Decoupling input internal bypass |
| DET | – | HF detector voltage input |
| DIV4 | – | Divide by 4 input |
| DODS | – | Drop out detector suppression |
| D1+4 | – | Photodiode currents |
| FE | – | Focus error signal |
| FE lag | – | Focus error signal for LAG network |
| HF | – | HF output for DEMOD |
| HFD | – | HF detector output for DEMOD |
| HF-in | – | HF current input to HF amplifier |
| HF-out | – | HF amplifier and equalizer voltage output |
| LM | – | Laser monitor diode input |
| LO | – | Laser amplifier current output |
| MC | – | Motor control signal |
| offset IN | – | Offset control input |
| offset OUT | – | Offset control output |
| PLLH | – | PLL on hold output |
| RADout | – | output of RE2-RE1 input |
| RE | – | Radial error signal (Amplified $RE_2$-$RE_1$ currents) |
| Rosc | – | Resistor wobble oscillator |
| Rwob | – | Wobble generator input |
| RE1 | – | Radial error signal 1 (summation of amplified currents $D_3$ and $D_4$ |
| RE2 | – | Radial error signal 2 (summation of amplified currents $D_1$ and $D_2$ |
| RE dig | – | Radial error digital |
| RE lag | – | Radial error signal for LAG network |
| Sc | – | Starting up capacitor input |
| Si/RD | – | On/off control for laser supply and focus circuit. Ready signal, Starting up procedure succesful. |
| TL | – | Track loss output signal |
| TTM– | – | Control voltage for turntable motor |
| TTM+ | – | Control voltage for turntable motor |
| Vext– | – | Supply connection |
| Vext+ | – | Supply connection |
| ATSB | – | Attenuation of Audio level in Search position (Cueing) |
| ANI | – | Digital Data information on disc signal |
| CDL | – | Capacitor Damping Left |
| CDR | – | Capacitor Damping Right |
| CEFM | – | Clock Eight-to-Fourteen Modulator |
| CLAB | – | Clock signal Decoder-A to DAC |
| CLI | – | I²S Serial Clock Input of DAC |
| CRI | – | Counter Reset Inhibit |
| DAAB | – | Data signal Decoder-A to DAC |
| DAI | – | I²S Serial Data Input of DAC |
| DEC | – | Deemphasis Control of DAC |
| DEEM | – | Deemphasis |
| DEL | – | De-emphasis Left |
| DER | – | De-emphasis Right |
| DOBM | – | Digital out signal |
| EFAB | – | Error flag Decoder-A to ADOC |
| INTL | – | Integrator Left |
| INTR | – | Integrator Right |
| IREF | – | Reference Current |
| MUTE | – | Mute signal |
| OALO | – | Operational Amplifier Left Output |
| OARO | – | Operational Amplifier Right Output |
| OALI– | – | Operational Amplifier Left Input – |
| OALI+ | – | Operational Amplifier Left Input + |
| OARI– | – | Operational Amplifier Right Input – |
| OARI+ | – | Operational Amplifier Right Input + |
| PD/OC | – | Phase detector - oscillator control |
| QCL | – | Q-channel Clock signal |
| QDA | – | Q-channel Data signal |
| QRA | – | Q-channel Request Aknowledge |
| SCAB | – | Subcode clock Decoder-A to ADOC |
| SDAB | – | Subcode data Decoder-A to ADOC |
| SWAB/SSM | – | Subcode Word/Start-stop motor signal |
| WSAB | – | Word select Decoder-A to ADOC |
| WSI | – | I²S Word Select Input of DAC |
| XIN | – | Oscillator signal in Decoder-A |
| XSYS | – | Oscillator signal out DAC |

## POWER SUPLLY

| | | | | |
|---|---|---|---|---|
| SK1 G2 | 2704 E8 | 2714 F8 | 6511 A4 | 6587 E5 |
| 1510 B1 | 2705 G6 | 2715 G7 | 6573 C9 | 6590 D6 |
| 2500 G2 | 2706 F6 | 2716 C10 | 6579 C9 | 6591 F6 |
| 2519 B3 | 2707 G6 | 3732 B4 | 6580 E5 | 6592 G6 |
| 2522 D7 | 2708 G8 | 3832 C8 | 6581 D5 | 6593 E6 |
| 2524 D7 | 2709 G4 | 3837 F8 | 6582 G5 | 6602 B7 |
| 2525 C7 | 2710 F4 | 3843 G8 | 6583 F5 | 6603 C7 |
| 2526 C7 | 2711 H6 | 3856 H4 | 6584 G5 | 9064 C2 |
| 2528 C8 | 2712 H8 | 3879 E8 | 6586 D5 | 9066 B2 |
| 2703 E6 | 2713 F6 | 5001 A3 | 6586 F5 | |







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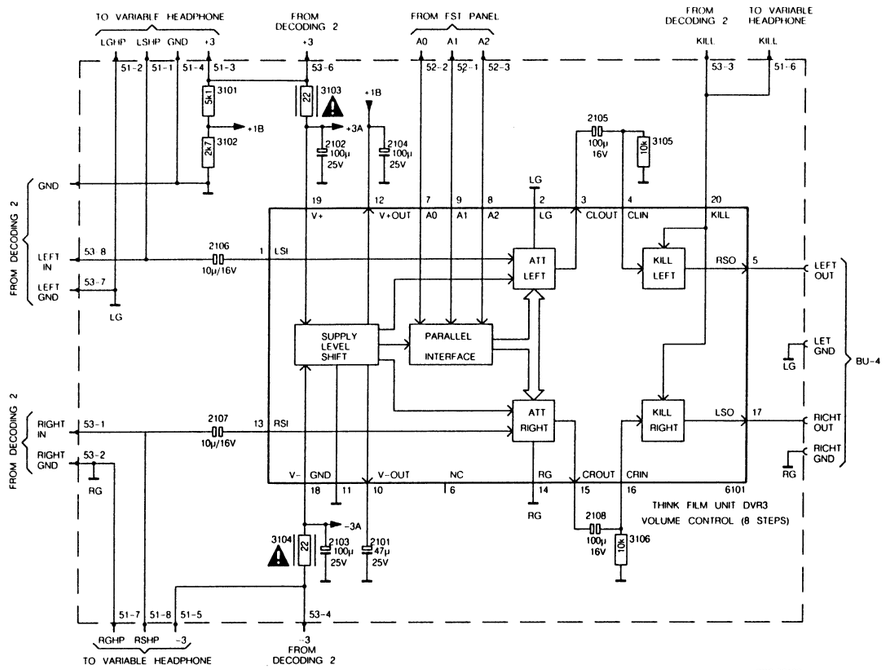
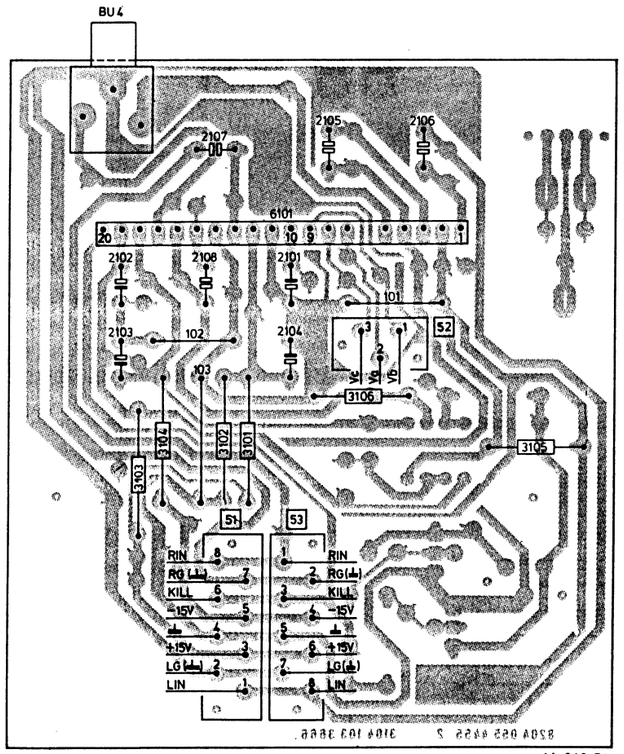
## VARIABLE LINE OUT CIRCUIT DIAGRAM

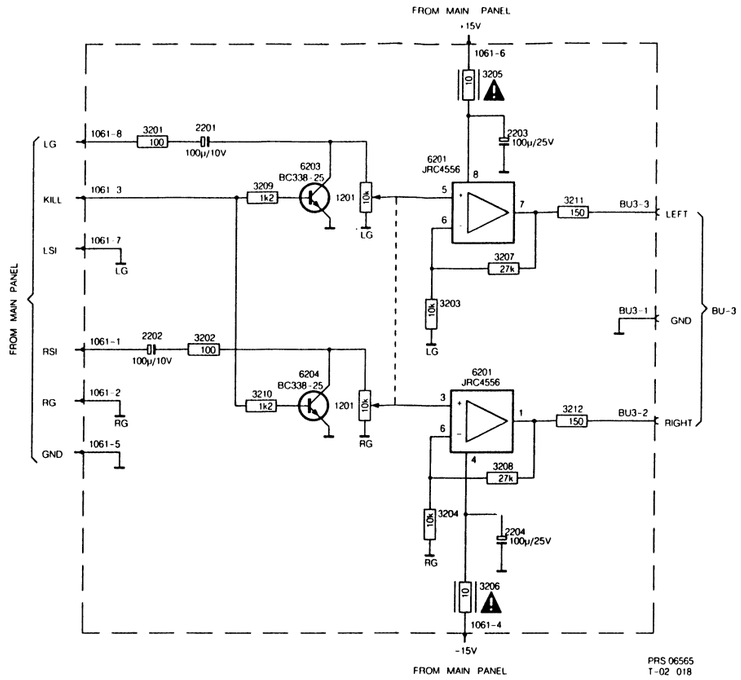



## VARIABLE LINE OUT PANEL

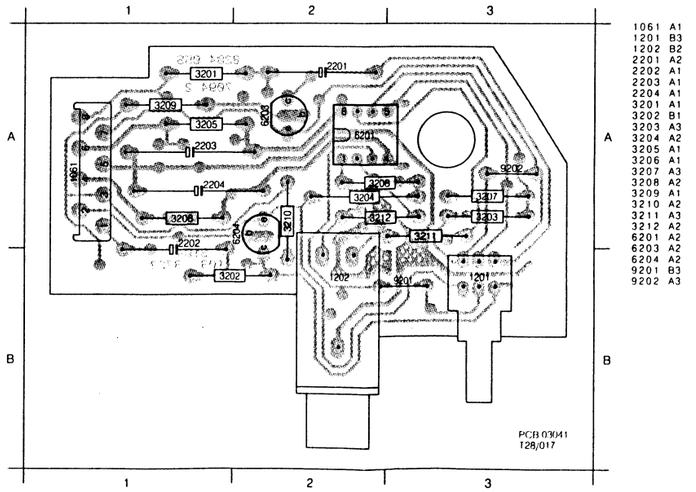




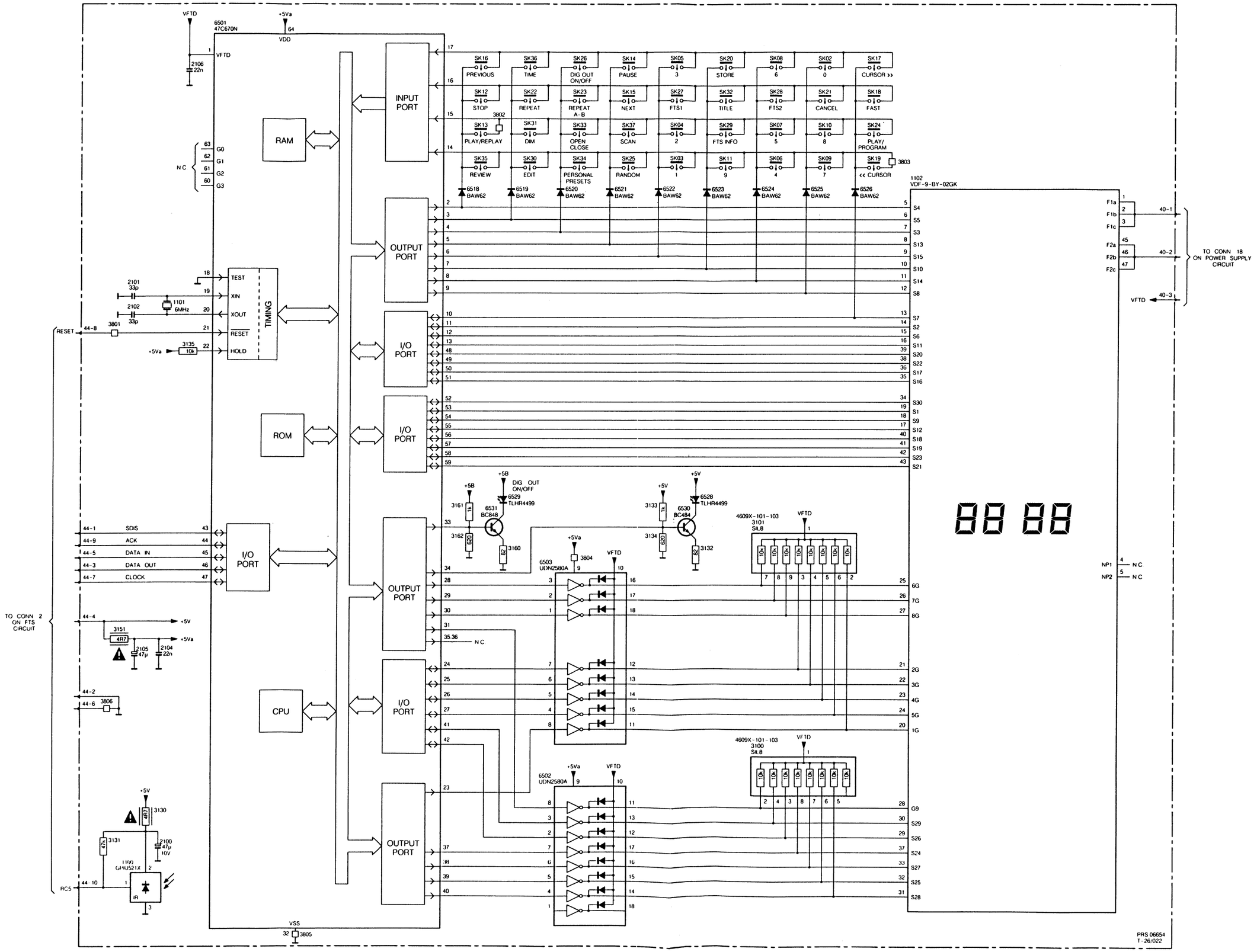

## VARIABLE HEADPHONE CIRCUIT DIAGRAM




## VARIABLE HEADPHONE PANEL

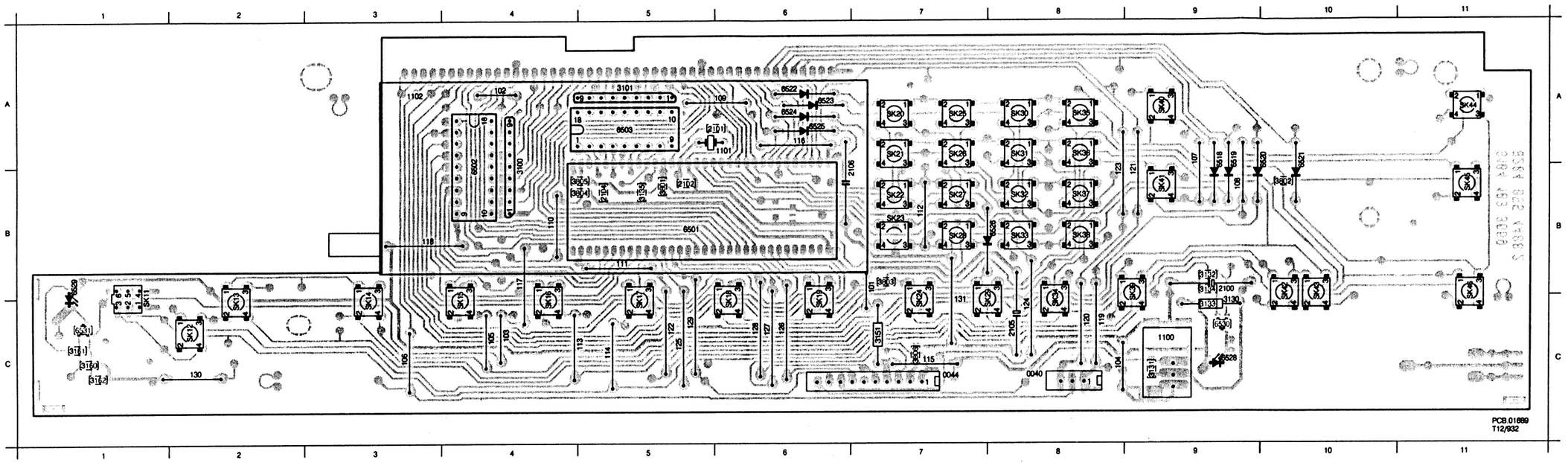


## CONTROL & DISPLAY CIRCUIT DIAGRAM

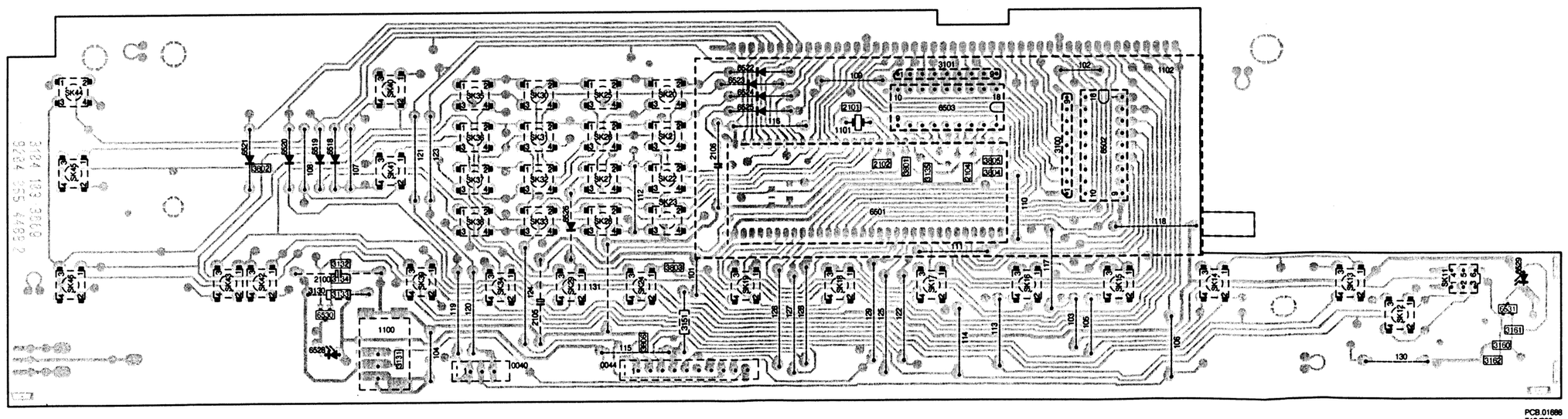


## DISPLAY PANEL COMPONENT SIDE

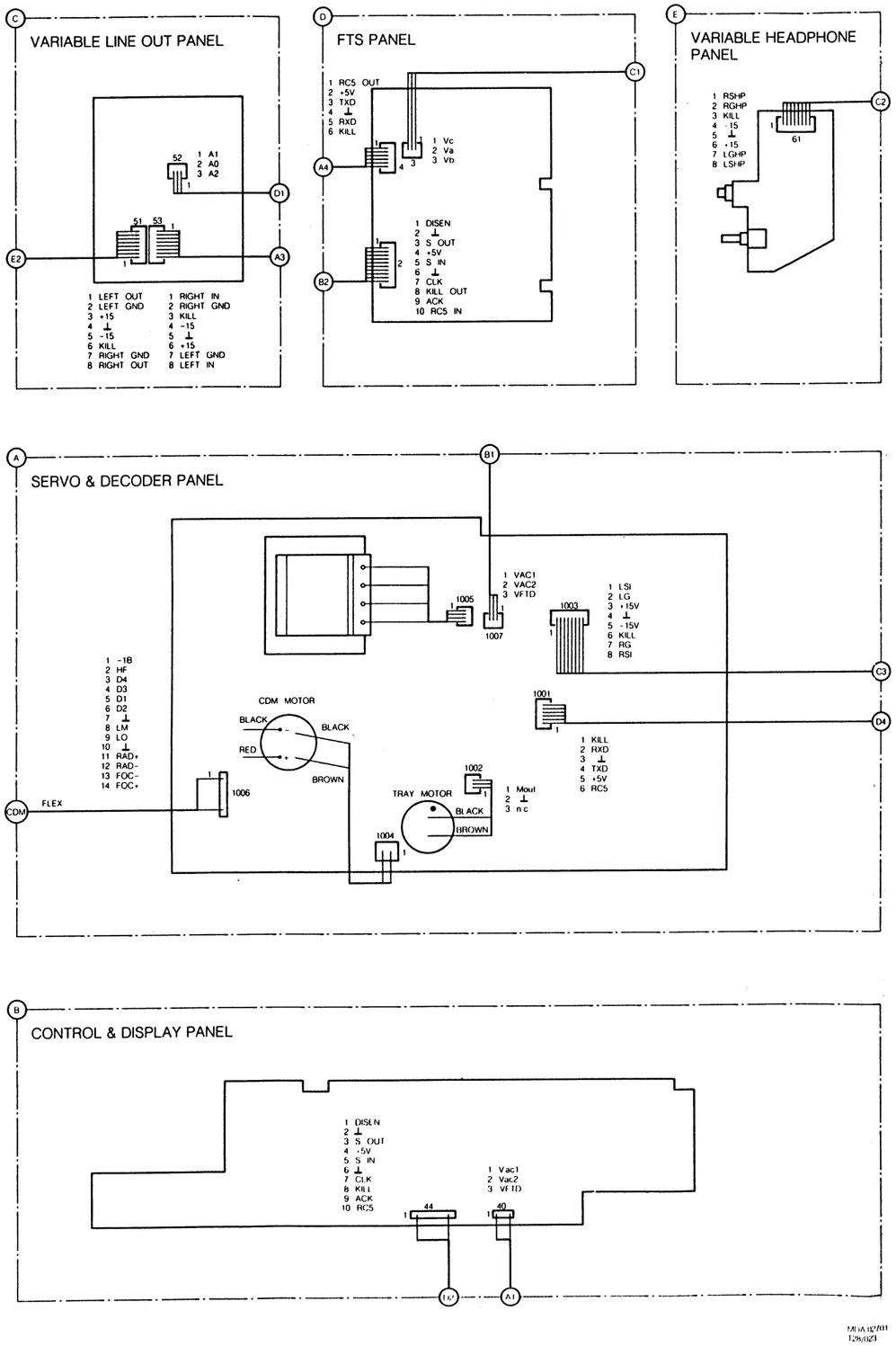
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | B 7 | 106 | C 3 | 111 | B 5 | 116 | A 6 | 121 | B 9 | 126 | C 6 | 0040 | C 8 | 131 | C 7 | 2105 | C 8 | 3131 | C 9 | 3151 | C 7 | 3802 | B10 | 6501 | B 5 | 6520 | A10 | 6525 | A 6 | 6531 | C 1 | SK15 | C 4 | SK20 | A 7 | SK25 | A 7 | SK30 | A 8 | SK35 | A 8 | SK40 | A 9 | SK45 | B11 |
| 102 | A 4 | 107 | A 9 | 112 | B 7 | 117 | B 4 | 122 | C 5 | 127 | C 6 | 0044 | C 7 | 2100 | B 9 | 2106 | A 6 | 3132 | B 9 | 3160 | C 1 | 3803 | B 7 | 6502 | A 4 | 6521 | A10 | 6526 | B 8 | SK11 | B 1 | SK16 | C 4 | SK21 | A 7 | SK26 | A 7 | SK31 | A 8 | SK36 | A 8 | SK41 | B 9 | SK46 | B11 |
| 103 | C 4 | 108 | B 9 | 113 | C 5 | 118 | B 3 | 123 | B 8 | 128 | C 6 | 1100 | C 9 | 2101 | A 6 | 3100 | A 4 | 3133 | C 9 | 3161 | C 1 | 3804 | B 5 | 6503 | A 5 | 6522 | A 6 | 6528 | C 9 | SK12 | C 2 | SK17 | C 5 | SK22 | B 7 | SK27 | B 7 | SK32 | B 8 | SK37 | B 8 | SK42 | B10 | | |
| 104 | C 8 | 109 | A 6 | 114 | C 5 | 119 | C 8 | 124 | C 8 | 129 | C 5 | 1101 | A 6 | 2102 | B 5 | 3101 | A 5 | 3134 | B 9 | 3162 | C 1 | 3805 | B 5 | 6518 | A 9 | 6523 | A 6 | 6529 | B 1 | SK13 | C 2 | SK18 | C 6 | SK23 | B 7 | SK28 | B 7 | SK33 | B 8 | SK38 | B 8 | SK43 | B10 | | |
| 105 | C 4 | 110 | B 4 | 115 | C 7 | 120 | C 8 | 125 | C 5 | 130 | C 2 | 1102 | A 3 | 2104 | B 5 | 3130 | C 9 | 3135 | B 5 | 3801 | B 5 | 3806 | C 7 | 6519 | A 9 | 6524 | A 6 | 6530 | C 9 | SK14 | C 3 | SK19 | C 6 | SK24 | C 7 | SK29 | C 7 | SK34 | C 8 | SK39 | B 9 | SK44 | A11 | | |




## DISPLAY PANEL SOLDER SIDE



## WIRING DIAGRAM



# SERVO CIRCUIT DIAGRAM

SERVO

DECODER IC6549 HF DODS

6530A/2 MC68HC05C8P/SERVO µP CLOCK CPU I/O PORTS RESET Vdd XTAL1 XTAL2 IRQ D4 D6 INT/T0 TL RE-dig Vss

KILL FROM DECODER 2695 10µ 50V 3721 47k 3720 1k 6559 BC848 6550 1N4002 3830 3627 4k7 3628 200k 3831 2622 4µ7 2610 33µ 16V 2621 22n 1503 4 MHz 3629 220k

+5V 22k 3638 SK2 TRAY DETECTION

TO R3574 TO R3557

+5V 3646 22k +5V 3647 22k 3815

+5V 4k7 3503 -6V 4k7 3504 +5A -6A

ADJUST 3520 50mV DC SEE ALSO TABLE B4 +5A 4k7 3501 1k 3502 2501 22n 2504 470p

CDM FLEX PRINT (FOIL) 1006-2 DIODE ASSEMBLY D1 D2 D3 D4 1006-5 1006-6 1006-4 1006-3 SEE TABLE B3 G 1006-7 G 1006-1 GUARD RING PHOTODIODE

LASER ASSEMBLY 1003 10µ 1001 1k 47n 1002 LASER MONITOR LO 1006-9 LM 1006-8 1006-10

+10 18 3522 6502 BC338 3524 100 2521 22µ 40V 3523 12 2520 220p 3521 220 4k7 3520 LASER OUTPUT ADJ IN COMBINATION WITH 1 2 50mV SEE ALSO TABLE B4

3506 100 3507 1k 2511 1n 2509 100p 2503 22n 2506 22n 24k 3508 2507 2n2 2514 470n 12k 3505 3882 2510 10n

$V_{DD}$ $V_{BB}$ BGC CLPF GCtl TL BEQ HFout DET DEC

HF AMPLIFIER EQUALIZER HFin GCtl RE1 RE2 DODS HFD HFL DO GAIN CONTROL HF AMPLITUDE SLICERS ref 1 ref 2 ref 3 ref 4 2575 47n 2515 1n

6501 PHOTO DIODE SIGNAL PROCESSOR TDA 8808 © FLAT PACK

LASER SUPPLY ref 6 STARTING CIRCUIT Sc Si/RD FOCUS NORMALIZING CIRCUIT FE FS FElag 3509 5k6 3851 3561 150k 11k 3560 2560 4n7 3829 2561 470n

FOCUS DRIVE

6500 (1/2A) TCA0372 3545 +10A 2546 22n -10A 3546 2542 22n 3566 22 2563 100n 3565 27 3847 3567 82k 3562 120k 3569 680k +5V 22k 3568 6V FOCUS OFFSET IN COMBINATION WITH 27 400 mV

1006-13 FOC- 1006-14 FOC+ TO FOCUS MOTOR VIA FLEX PRINT

TURNTABLE MOTOR CONTROL

+5V 100k 3585 91k 3584 +10A 2693 22n 6512 (1/2A) NJM4560 -10A 2566 22n 3581 3k3 3582 5k6 3579 150k 2572 330n 2570 2n2 3576 200k 6504 -(1/2B) TCA0372 3578 82k 3814 3879 6547 IN4002 6548 IN4002 3589 4k7 3588 47k 2574 18n 3574 33k 3586 680k 6517 BC858 3575 4k7 3580 6516 BC858 3884 1k2 3591 3807 5k1 3555 18k 3552 1k8 2550 47n 3533 5k1 3557 22k PIN 11 IC6530 Vref

TO TURNTABLE MOTOR CIRCUIT 1004-4 +10 1004-3 +10 1004-2 GND 1004-1 Vc

RADIAL DRIVE

6503 TDA8809 FUNCTION DECODER 3 1/2-BIT DAC RADIAL LAG SHORT 2538 220n 3530 47k 3531 15k 2530 8n2 2531 8n2 3840 220k 3534 330n 2534 330n Cagc Rosc Rwob Cosc1 Cosc2 $V_{EXT+}$ $V_{EXT-}$ $V_{DD}$ LAG

WOBBLE OSCILLATOR 650Hz 0° 45° 90° LAG HOLD U/I - RADIAL RE IN LAG SHORT RE LAG RE LEAD

6500-(1/2B) TCA0372 3543 6k8 6506 BZX55 5V6 6505 BZX55 5V6 3541 6k8 2540 µ68 /50V 2545 100n 33 3542 3540 47k 1006-11 RAD+ 1006-12 RAD- TO RADIAL MOTOR VIA FLEX PRINT

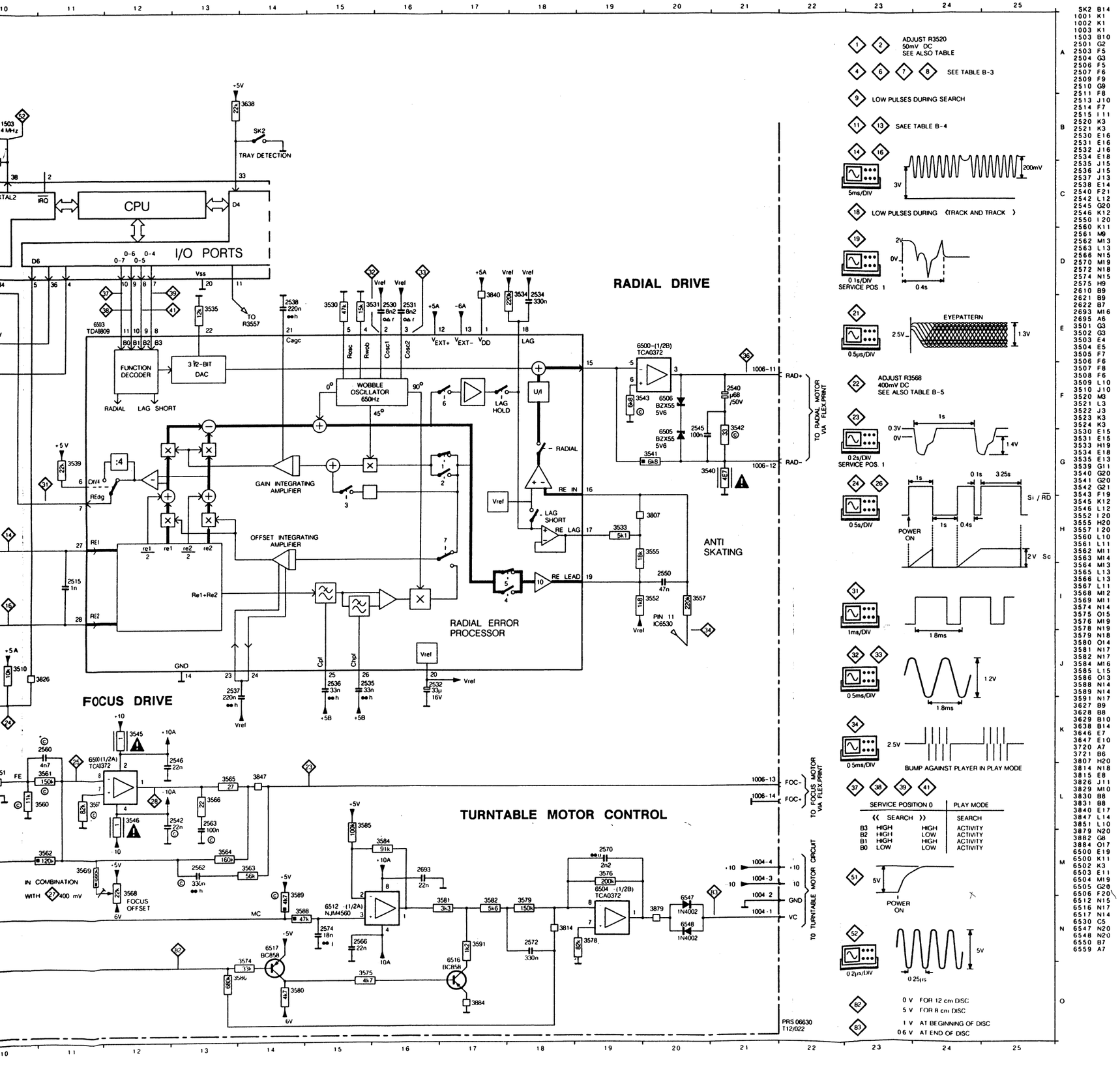
GAIN INTEGRATING AMPLIFIER OFFSET INTEGRATING AMPLIFIER Re1+Re2 RADIAL ERROR PROCESSOR ANTI SKATING

+5V 22k 3539 :4 DIV4 REdig 2515 1n 2536 33n 2535 33n 2532 33µ 16V 2537 220n +5B +5B Vref

CHIP JUMPER (0Ω)

RIS 06630 12022

CS 30 115




1 2 ADJUST R3520 50mV DC SEE ALSO TABLE

4 6 7 8 SEE TABLE B-3

9 LOW PULSES DURING SEARCH

11 13 SAEE TABLE B-4

14 16 5ms/DIV 3V 200mV

18 LOW PULSES DURING ‹TRACK AND TRACK ›

19 0 1s/DIV SERVICE POS. 1 2V 0V 0.4s

21 0.5µs/DIV 2.5V EYEPATTERN 1.3V

22 ADJUST R3568 400mV DC SEE ALSO TABLE B-5

23 0.2s/DIV SERVICE POS. 1 0.3V 0V 1s 1.4V

24 26 0.5s/DIV POWER ON 1s 0.1s 0.4s 3.25s SI / RD 2V Sc

31 1ms/DIV 1.8ms

32 33 0.5ms/DIV 1.2V 1.8ms

34 0.5ms/DIV 2.5V BUMP AGAINST PLAYER IN PLAY MODE

37 38 39 41

| SERVICE POSITION 0 | | PLAY MODE |
|---|---|---|
| ‹‹ SEARCH ›› | | SEARCH |
| B3 HIGH | HIGH | ACTIVITY |
| B2 HIGH | LOW | ACTIVITY |
| B1 HIGH | HIGH | ACTIVITY |
| B0 LOW | LOW | ACTIVITY |

51 5V POWER ON

52 0.2µs/DIV 0.25µs 5V

82 0 V FOR 12 cm DISC
5 V FOR 8 cm DISC

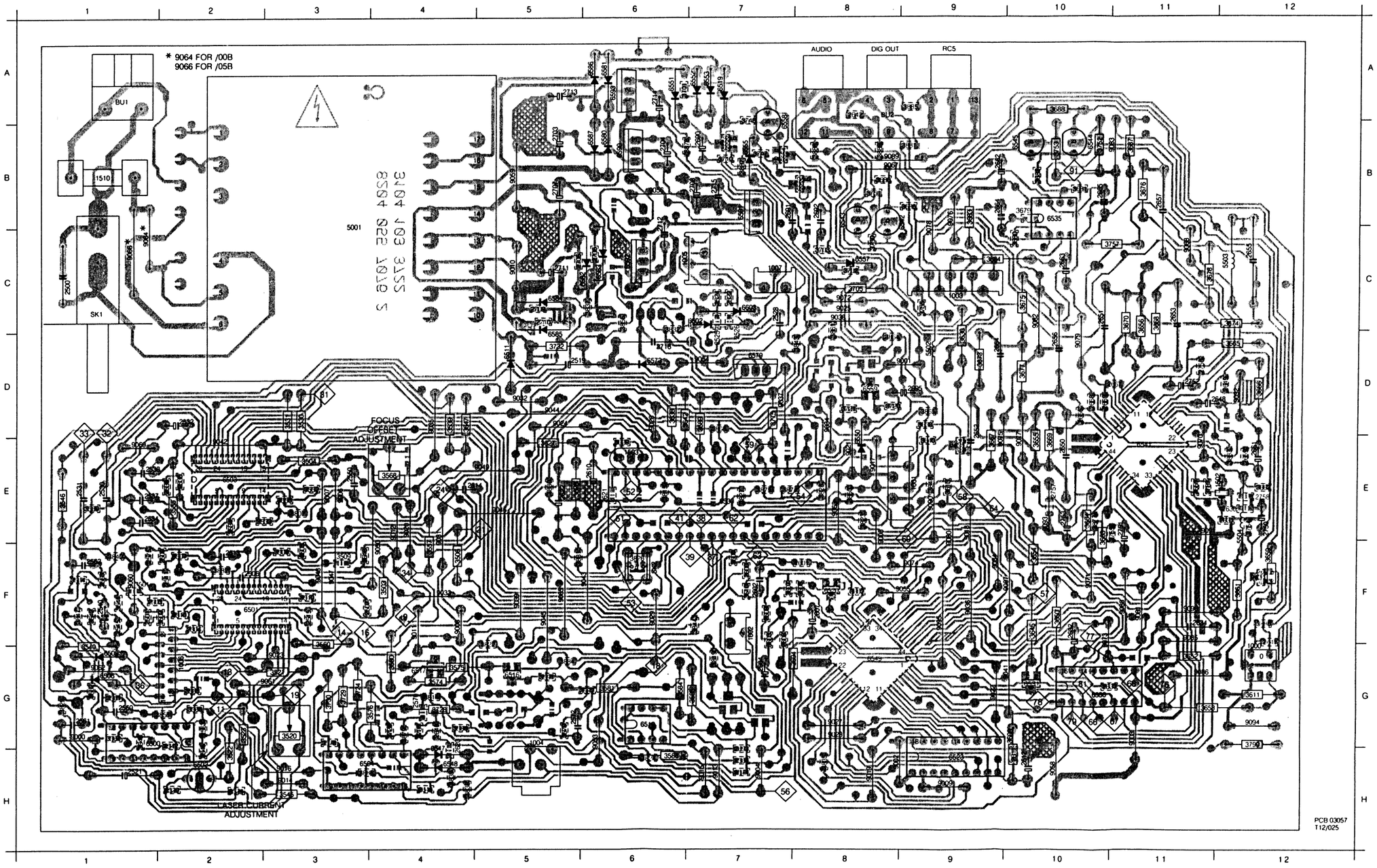
83 1 V AT BEGINNING OF DISC
0.6 V AT END OF DISC

| | | |
|---|---|---|
| | SK2 | B14 |
| | 1001 | K1 |
| | 1002 | K1 |
| | 1003 | K1 |
| | 1503 | B10 |
| A | 2501 | G2 |
| | 2503 | F5 |
| | 2504 | G3 |
| | 2506 | F5 |
| | 2507 | F6 |
| | 2509 | F9 |
| | 2510 | G9 |
| | 2511 | F8 |
| | 2513 | J10 |
| | 2514 | F7 |
| | 2515 | I 11 |
| | 2520 | K3 |
| B | 2521 | K3 |
| | 2530 | E16 |
| | 2531 | E16 |
| | 2532 | J16 |
| | 2534 | E18 |
| | 2535 | J15 |
| | 2536 | J15 |
| | 2537 | J13 |
| | 2538 | E14 |
| C | 2540 | F21 |
| | 2542 | L12 |
| | 2545 | G20 |
| | 2546 | K12 |
| | 2550 | I 20 |
| | 2560 | K11 |
| | 2561 | M9 |
| | 2562 | M13 |
| | 2563 | L13 |
| | 2566 | N15 |
| D | 2570 | M19 |
| | 2572 | N18 |
| | 2574 | N15 |
| | 2575 | H9 |
| | 2610 | B9 |
| | 2621 | B9 |
| | 2622 | B7 |
| | 2693 | M16 |
| | 2695 | A6 |
| E | 3501 | G3 |
| | 3502 | G3 |
| | 3503 | E4 |
| | 3504 | E5 |
| | 3505 | F7 |
| | 3506 | F6 |
| | 3507 | F8 |
| | 3508 | F6 |
| | 3509 | L10 |
| | 3510 | J10 |
| F | 3520 | M3 |
| | 3521 | L3 |
| | 3522 | J3 |
| | 3523 | K3 |
| | 3524 | K3 |
| | 3530 | E15 |
| | 3531 | E15 |
| | 3533 | H19 |
| | 3534 | E18 |
| | 3535 | E13 |
| G | 3539 | G11 |
| | 3540 | G20 |
| | 3541 | G20 |
| | 3542 | G21 |
| | 3543 | F19 |
| | 3545 | K12 |
| | 3546 | L12 |
| | 3552 | I 20 |
| | 3555 | H20 |
| H | 3557 | I 20 |
| | 3560 | L10 |
| | 3561 | L11 |
| | 3562 | M11 |
| | 3563 | M14 |
| | 3564 | M13 |
| | 3565 | L13 |
| | 3566 | L13 |
| | 3567 | L11 |
| | 3568 | M12 |
| I | 3569 | M11 |
| | 3574 | N14 |
| | 3575 | O15 |
| | 3576 | M19 |
| | 3578 | N19 |
| | 3579 | N18 |
| | 3580 | O14 |
| | 3581 | N17 |
| | 3582 | N17 |
| J | 3584 | M16 |
| | 3585 | L15 |
| | 3586 | O13 |
| | 3588 | N14 |
| | 3589 | N14 |
| | 3591 | N17 |
| | 3627 | B9 |
| | 3628 | B8 |
| | 3629 | B10 |
| K | 3638 | B14 |
| | 3646 | E7 |
| | 3647 | E10 |
| | 3720 | A7 |
| | 3721 | B6 |
| | 3807 | H20 |
| | 3814 | N18 |
| | 3815 | E8 |
| | 3826 | J11 |
| | 3829 | M10 |
| L | 3830 | B8 |
| | 3831 | B8 |
| | 3840 | E17 |
| | 3847 | L14 |
| | 3851 | L10 |
| | 3879 | N20 |
| | 3882 | G8 |
| | 3884 | O17 |
| | 6500 | E19 |
| M | 6500 | K11 |
| | 6502 | K3 |
| | 6503 | E11 |
| | 6504 | M19 |
| | 6505 | G20 |
| | 6506 | F20 |
| | 6512 | N15 |
| | 6516 | N17 |
| | 6517 | N14 |
| N | 6530 | C5 |
| | 6547 | N20 |
| | 6548 | N20 |
| | 6550 | B7 |
| | 6559 | A7 |
| O | | |

3-7

## SERVO & DECODERPANEL SOLDER SIDE

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BU1 A1 | 2509 F2 | 2538 E1 | 2609 F7 | 2653 C11 | 2704 B6 | 2758 E12 | 3539 D4 | 3575 G4 | 3611 G12 | 3661 F12 | 3684 C9 | 3750 C8 | 3831 F5 | 3878 B7 | 6505 G1 | 6549 G8 | 6586 A6 | 9013 H7 | 9034 D8 | 9059 B5 | 9080 F9 |
| BU2 A8 | 2510 F2 | 2540 F1 | 2610 E6 | 2654 D9 | 2705 C5 | 3501 F1 | 3540 G1 | 3576 G4 | 3613 E9 | 3662 E12 | 3685 B9 | 3751 B8 | 3832 D6 | 3879 G4 | 6506 G1 | 6550 E8 | 6587 B6 | 9014 H3 | 9035 D4 | 9060 F1 | 9081 F11 |
| SK1 C1 | 2511 F2 | 2542 H2 | 2611 H10 | 2655 C12 | 2706 C6 | 3502 F2 | 3541 F1 | 3578 G3 | 3627 E5 | 3663 F10 | 3686 B8 | 3752 B10 | 3835 H8 | 3880 F12 | 6511 D5 | 6551 A6 | 6590 B6 | 9015 H7 | 9036 F9 | 9061 G2 | 9082 C10 |
| SK2 F6 | 2513 F2 | 2545 F1 | 2612 H10 | 2656 D10 | 2707 B5 | 3503 F4 | 3542 F1 | 3579 G5 | 3628 E5 | 3664 E10 | 3687 B11 | 3753 B10 | 3837 C6 | 3881 B9 | 6512 G6 | 6552 A7 | 6591 B7 | 9016 H3 | 9037 D7 | 9062 G1 | 9083 B11 |
| 1000 G12 | 2514 E4 | 2546 H2 | 2620 H4 | 2657 B11 | 2708 B7 | 3504 E3 | 3543 H1 | 3580 G4 | 3629 E6 | 3665 D12 | 3688 A10 | 3755 C9 | 3838 H4 | 3882 F2 | 6516 G5 | 6553 A7 | 6592 C6 | 9017 E8 | 9038 C8 | 9063 E8 | 9084 F9 |
| 1001 E9 | 2515 F3 | 2550 E3 | 2621 E6 | 2659 E12 | 2709 C5 | 3505 F3 | 3545 H3 | 3581 G6 | 3630 D9 | 3666 D12 | 3701 A6 | 3757 C10 | 3839 H4 | 3883 E12 | 6517 G4 | 6554 B7 | 6593 A6 | 9018 E9 | 9039 F5 | 9064 C1 | 9085 F11 |
| 1002 F7 | 2519 D5 | 2560 G1 | 2622 E5 | 2661 E12 | 2710 C5 | 3506 F4 | 3546 E1 | 3582 G5 | 3638 D6 | 3667 E9 | 3702 C8 | 3775 D7 | 3840 F1 | 3884 G5 | 6519 A7 | 6555 B7 | 6602 C7 | 9019 H8 | 9041 G10 | 9065 F5 | 9086 G11 |
| 1003 C9 | 2520 H2 | 2561 G1 | 2630 E12 | 2662 B9 | 2711 C5 | 3507 F2 | 3552 E3 | 3584 G6 | 3639 D9 | 3668 D11 | 3703 C8 | 3787 E11 | 3843 D8 | 3885 A9 | 6520 F8 | 6556 B7 | 6603 C7 | 9020 E4 | 9042 E2 | 9066 C1 | 9087 F10 |
| 1004 G5 | 2521 H1 | 2562 F1 | 2631 E12 | 2663 C10 | 2712 C6 | 3508 F3 | 3555 E3 | 3585 G7 | 3640 E9 | 3669 E10 | 3705 C8 | 3799 G12 | 3844 F7 | 3886 H3 | 6523 H9 | 6557 C8 | 9000 G1 | 9021 E8 | 9043 F6 | 9067 B8 | 9088 F11 |
| 1005 C6 | 2522 C7 | 2563 G2 | 2632 F10 | 2664 B9 | 2713 A5 | 3509 F3 | 3557 F4 | 3588 G4 | 3642 D7 | 3670 C11 | 3710 B7 | 3807 E3 | 3847 F1 | 3887 B7 | 6524 E9 | 6558 B7 | 9001 D8 | 9022 G9 | 9044 D5 | 9068 C11 | 9089 B8 |
| 1006 G2 | 2524 C7 | 2566 H7 | 2633 G10 | 2665 B10 | 2714 A6 | 3510 F3 | 3560 G3 | 3588 H6 | 3645 F10 | 3673 D9 | 3720 D8 | 3814 G4 | 3848 E9 | 3888 B8 | 6530 E7 | 6559 D8 | 9002 H8 | 9023 G3 | 9045 F5 | 9069 E1 | 9090 E9 |
| 1007 C7 | 2525 D7 | 2570 G4 | 2634 F11 | 2666 D10 | 2715 B7 | 3520 G3 | 3561 G1 | 3589 D7 | 3646 F3 | 3674 C12 | 3721 D8 | 3815 E6 | 3850 E8 | 3889 B8 | 6531 G10 | 6562 B8 | 9003 G11 | 9024 D5 | 9046 E5 | 9070 E11 | 9091 E11 |
| 1502 E12 | 2526 D7 | 2572 G5 | 2641 G12 | 2667 D10 | 2716 D6 | 3521 G3 | 3562 G1 | 3591 G5 | 3647 D4 | 3675 C10 | 3724 G3 | 3819 G7 | 3851 G1 | 5001 C3 | 6535 B10 | 6568 F12 | 9004 H7 | 9025 C8 | 9047 F3 | 9071 F10 | 9092 D12 |
| 1503 E6 | 2528 C7 | 2574 H7 | 2642 A8 | 2668 D10 | 2750 E12 | 3522 H2 | 3563 F1 | 3600 F7 | 3650 F10 | 3676 B11 | 3725 G4 | 3822 G5 | 3856 C6 | 5502 D9 | 6536 G10 | 6573 D6 | 9005 F8 | 9026 D6 | 9048 F3 | 9072 C8 | 9093 E10 |
| 1510 B1 | 2530 E1 | 2575 F1 | 2645 H4 | 2669 D10 | 2751 E11 | 3523 G2 | 3564 F1 | 3602 F8 | 3651 E11 | 3677 D10 | 3728 G4 | 3823 E8 | 3861 D8 | 5503 C12 | 6541 E11 | 6579 D7 | 9006 E3 | 9027 G8 | 9049 E4 | 9073 G10 | 9094 G12 |
| 2500 C1 | 2531 E1 | 2600 F7 | 2646 G4 | 2690 B7 | 2752 D11 | 3524 H2 | 3565 G2 | 3603 G7 | 3652 G11 | 3678 C11 | 3729 G3 | 3824 H6 | 3864 D8 | 5504 F12 | 6542 C9 | 6580 B6 | 9007 E3 | 9028 G8 | 9050 F4 | 9074 F9 | 9095 F9 |
| 2501 F1 | 2532 D2 | 2601 F8 | 2648 D11 | 2691 B7 | 2753 E10 | 3530 D3 | 3566 G2 | 3604 G8 | 3653 G11 | 3679 B10 | 3730 G3 | 3826 F6 | 3865 D9 | 6500 G1 | 6543 C8 | 6581 A6 | 9008 F4 | 9029 F6 | 9053 H6 | 9075 E9 | 9096 F11 |
| 2503 F1 | 2534 E1 | 2602 F7 | 2649 D12 | 2692 B8 | 2754 E12 | 3531 D3 | 3567 G1 | 3605 F8 | 3654 F10 | 3680 C10 | 3731 G4 | 3827 E7 | 3866 D7 | 6501 F2 | 6544 B10 | 6582 C6 | 9009 H9 | 9030 G2 | 9054 D7 | 9076 C9 | |
| 2504 F2 | 2535 E2 | 2604 G7 | 2650 E10 | 2693 H7 | 2755 F11 | 3533 E2 | 3568 E4 | 3607 F7 | 3655 E10 | 3681 B10 | 3732 D5 | 3828 E8 | 3874 E7 | 6502 H2 | 6545 B10 | 6583 C6 | 9010 C5 | 9031 F4 | 9055 F8 | 9077 E10 | |
| 2506 F2 | 2536 E2 | 2607 F8 | 2651 C10 | 2695 D9 | 2756 D11 | 3534 E2 | 3569 E1 | 3609 G10 | 3656 D11 | 3682 B10 | 3747 B7 | 3829 G1 | 3875 E7 | 6503 E2 | 6547 H4 | 6584 C5 | 9011 F4 | 9032 D5 | 9056 B6 | 9078 C9 | |
| 2507 F4 | 2537 E1 | 2608 G7 | 2652 E9 | 2703 B5 | 2757 E10 | 3535 E2 | 3574 G4 | 3610 F7 | 3659 F12 | 3683 B9 | 3748 B7 | 3830 E5 | 3877 E10 | 6504 H3 | 6548 H4 | 6585 D5 | 9012 E4 | 9033 F4 | 9058 H10 | 9079 D10 | |



## SERVO & DECODERPANEL COMPONENT SIDE

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BU1 | A11 | 2509 | F11 | 2538 | E11 | 2609 | F5 | 2653 | C2 | 2704 | B6 | 2758 | E1 | 3539 | D8 | 3575 | G8 | 3611 | G1 | 3661 | F1 | 3684 | C3 |
| BU2 | A4 | 2510 | F11 | 2540 | F12 | 2610 | E7 | 2654 | D3 | 2705 | C7 | 3501 | F11 | 3540 | G12 | 3576 | G9 | 3613 | E4 | 3662 | E1 | 3685 | B4 |
| SK1 | C12 | 2511 | F11 | 2542 | H11 | 2611 | H3 | 2655 | C1 | 2706 | C7 | 3502 | F11 | 3541 | F12 | 3578 | G10 | 3627 | E7 | 3663 | F2 | 3686 | B4 |
| SK2 | F7 | 2513 | F10 | 2545 | F12 | 2612 | H3 | 2656 | D3 | 2707 | B7 | 3503 | F9 | 3542 | F12 | 3579 | G7 | 3628 | E7 | 3664 | E2 | 3687 | B2 |
| 1000 | G1 | 2514 | E8 | 2546 | H11 | 2620 | H8 | 2657 | B2 | 2708 | B6 | 3504 | E10 | 3543 | H11 | 3580 | G9 | 3629 | E7 | 3665 | D1 | 3688 | A3 |
| 1001 | E4 | 2515 | F10 | 2550 | E9 | 2621 | E7 | 2659 | E1 | 2709 | C8 | 3505 | F10 | 3545 | H10 | 3581 | G7 | 3630 | D4 | 3666 | D1 | 3701 | A6 |
| 1002 | F6 | 2519 | D7 | 2560 | G11 | 2622 | E7 | 2661 | E1 | 2710 | C7 | 3506 | F8 | 3546 | E12 | 3582 | G7 | 3638 | D6 | 3667 | E3 | 3702 | C5 |
| 1003 | C4 | 2520 | H11 | 2561 | G12 | 2630 | E1 | 2662 | B3 | 2711 | C7 | 3507 | F11 | 3552 | E10 | 3584 | G6 | 3639 | D4 | 3668 | D2 | 3703 | C5 |
| 1004 | G8 | 2521 | H11 | 2562 | F12 | 2631 | E1 | 2663 | C3 | 2712 | C6 | 3508 | F10 | 3555 | E10 | 3585 | G6 | 3640 | E4 | 3669 | E3 | 3705 | C5 |
| 1005 | C6 | 2522 | C6 | 2563 | G11 | 2632 | F3 | 2664 | B3 | 2713 | A7 | 3509 | F9 | 3557 | F9 | 3586 | G8 | 3642 | D6 | 3670 | C2 | 3710 | B6 |
| 1006 | G11 | 2524 | C6 | 2566 | H6 | 2633 | G2 | 2665 | B2 | 2714 | A7 | 3510 | F10 | 3560 | G10 | 3588 | H6 | 3645 | F3 | 3673 | D3 | 3720 | D4 |
| 1007 | C5 | 2525 | D6 | 2570 | G9 | 2634 | F1 | 2666 | D3 | 2715 | B6 | 3520 | G10 | 3561 | G12 | 3589 | D6 | 3646 | F9 | 3674 | C1 | 3721 | D5 |
| 1502 | E1 | 2526 | D6 | 2572 | G7 | 2641 | G1 | 2667 | D2 | 2716 | D6 | 3521 | G10 | 3562 | G12 | 3591 | G7 | 3647 | D8 | 3675 | C3 | 3724 | G9 |
| 1503 | E7 | 2528 | C5 | 2574 | H6 | 2642 | A5 | 2668 | D2 | 2750 | E1 | 3522 | H11 | 3563 | F12 | 3600 | F6 | 3650 | F3 | 3676 | B2 | 3725 | G9 |
| 1510 | B12 | 2530 | E12 | 2575 | F11 | 2645 | H9 | 2669 | D2 | 2751 | E2 | 3523 | G10 | 3564 | F12 | 3602 | F5 | 3651 | E1 | 3677 | D3 | 3728 | C8 |
| 2500 | C12 | 2531 | E12 | 2600 | F6 | 2646 | G9 | 2690 | B6 | 2752 | D1 | 3524 | H10 | 3565 | G11 | 3603 | G5 | 3652 | G1 | 3678 | C1 | 3729 | G9 |
| 2501 | F11 | 2532 | D11 | 2601 | F5 | 2648 | D1 | 2691 | B5 | 2753 | E3 | 3530 | D10 | 3566 | G11 | 3604 | G5 | 3653 | G1 | 3679 | B3 | 3730 | G10 |
| 2503 | F11 | 2534 | E11 | 2602 | F6 | 2649 | D1 | 2692 | B5 | 2754 | E1 | 3531 | D10 | 3567 | G12 | 3605 | F5 | 3654 | F3 | 3680 | C3 | 3731 | G9 |
| 2504 | F11 | 2535 | E11 | 2604 | G6 | 2650 | E3 | 2693 | H6 | 2755 | F2 | 3533 | E10 | 3568 | E9 | 3607 | F5 | 3655 | E3 | 3681 | B2 | 3732 | D7 |
| 2506 | F10 | 2536 | E11 | 2607 | F5 | 2651 | C2 | 2695 | D4 | 2756 | D1 | 3534 | E11 | 3569 | E12 | 3656 | D2 | 3682 | B3 | 3747 | B5 | 3829 | G12 |
| 2507 | F9 | 2537 | E11 | 2608 | G5 | 2652 | E4 | 2703 | B7 | 2757 | E3 | 3535 | E11 | 3574 | G9 | 3610 | F6 | 3659 | F1 | 3683 | B4 | 3748 | B6 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3685 | B4 | 3751 | B4 | 3832 | D6 | 3835 | H5 | 3837 | C7 | 3838 | H8 | 3839 | H8 | 3840 | F12 | 3843 | D5 | 3844 | F6 | 3847 | F12 | 3848 | E4 |
| 3686 | B4 | 3752 | B2 | 3753 | B3 | 3755 | C4 | 3757 | C2 | 3775 | D5 | 3787 | E1 | 3799 | G1 | 3807 | E10 | 3814 | G9 | 3819 | G6 | 3822 | G8 |
| 3687 | B2 | 3753 | B3 | 3755 | C4 | 3757 | C2 | 3775 | D5 | 3787 | E1 | 3799 | G1 | 3807 | E10 | 3814 | G9 | 3819 | G6 | 3822 | G8 | 3823 | E5 |
| 3688 | A3 | 3755 | C4 | 3838 | H8 | 3839 | H8 | 3840 | F12 | 3843 | D5 | 3844 | F6 | 3847 | F12 | 3848 | E4 | 3851 | G11 | 3856 | C7 | 3861 | D5 |
| 3701 | A6 | 3757 | C2 | 3775 | D5 | 3787 | E1 | 3799 | G1 | 3807 | E10 | 3814 | G9 | 3848 | E4 | 3850 | E5 | 3851 | G11 | 3856 | C7 | 3864 | D4 |
| 3702 | C5 | 3775 | D5 | 3787 | E1 | 3799 | G1 | 3807 | E10 | 3814 | G9 | 3848 | E4 | 3850 | E5 | 3851 | G11 | 3856 | C7 | 3861 | D5 | 3865 | D4 |
| 3703 | C5 | 3787 | E1 | 3799 | G1 | 3807 | E10 | 3814 | G9 | 3819 | G6 | 3822 | G8 | 3823 | E5 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 |
| 3705 | C5 | 3799 | G1 | 3807 | E10 | 3814 | G9 | 3819 | G6 | 3822 | G8 | 3823 | E5 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 |
| 3710 | B6 | 3807 | E10 | 3814 | G9 | 3819 | G6 | 3822 | G8 | 3823 | E5 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 |
| 3720 | D4 | 3814 | G9 | 3819 | G6 | 3822 | G8 | 3823 | E5 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 |
| 3721 | D5 | 3815 | E6 | 3819 | G6 | 3822 | G8 | 3823 | E5 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 |
| 3724 | G9 | 3819 | G6 | 3822 | G8 | 3823 | E5 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 | 3832 | D6 |
| 3725 | G9 | 3822 | G8 | 3823 | E5 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 | 3832 | D6 | 3835 | H5 |
| 3728 | C8 | 3823 | E5 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 | 3832 | D6 | 3835 | H5 | 3837 | C7 |
| 3729 | G9 | 3824 | H6 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 | 3832 | D6 | 3835 | H5 | 3837 | C7 | 3838 | H8 |
| 3730 | G10 | 3826 | F7 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 | 3832 | D6 | 3835 | H5 | 3837 | C7 | 3838 | H8 | 3839 | H8 |
| 3731 | G9 | 3827 | E6 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 | 3832 | D6 | 3835 | H5 | 3837 | C7 | 3838 | H8 | 3839 | H8 | 3840 | F12 |
| 3732 | D7 | 3828 | E5 | 3829 | G12 | 3830 | E8 | 3831 | F7 | 3832 | D6 | 3835 | H5 | 3837 | C7 | 3838 | H8 | 3839 | H8 | 3840 | F12 | 3843 | D5 |
| 3747 | B5 | 3829 | G12 | 3830 | E8 | 3831 | F7 | 3832 | D6 | 3835 | H5 | 3837 | C7 | 3838 | H8 | 3839 | H8 | 3840 | F12 | 3843 | D5 | 3844 | F6 |
| 3748 | B6 | 3830 | E8 | 3831 | F7 | 3832 | D6 | 3835 | H5 | 3837 | C7 | 3838 | H8 | 3839 | H8 | 3840 | F12 | 3843 | D5 | 3844 | F6 | 3847 | F12 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3878 | B6 | 6505 | G12 | 6549 | G4 | 6586 | A7 | 9013 | H6 | 9034 | D5 | 9059 | B8 | 9080 | F4 | | | | | | | | |
| 3879 | G9 | 6506 | G12 | 6550 | E5 | 6587 | B7 | 9014 | H10 | 9035 | D9 | 9060 | F11 | 9081 | F2 | | | | | | | | |
| 3880 | F1 | 6511 | D8 | 6551 | A6 | 6590 | B7 | 9015 | H6 | 9036 | F4 | 9061 | G10 | 9082 | C3 | | | | | | | | |
| 3881 | B4 | 6512 | G6 | 6552 | A6 | 6591 | B6 | 9016 | H10 | 9037 | D5 | 9062 | G12 | 9083 | B2 | | | | | | | | |
| 3882 | F11 | 6516 | G8 | 6553 | A6 | 6592 | C7 | 9017 | E4 | 9038 | C5 | 9063 | E5 | 9084 | F3 | | | | | | | | |
| 3883 | E1 | 6517 | G9 | 6554 | B5 | 6593 | A7 | 9018 | E4 | 9039 | F8 | 9064 | C11 | 9085 | F1 | | | | | | | | |
| 3884 | G7 | 6519 | A6 | 6555 | B6 | 6602 | C6 | 9019 | H5 | 9041 | G3 | 9065 | F7 | 9086 | G1 | | | | | | | | |
| 3885 | A4 | 6520 | F5 | 6556 | B6 | 6603 | C6 | 9020 | E9 | 9042 | E11 | 9066 | C12 | 9087 | F3 | | | | | | | | |
| 3886 | H9 | 6523 | H4 | 6557 | C4 | 9000 | G12 | 9021 | E5 | 9043 | F7 | 9067 | B4 | 9088 | F2 | | | | | | | | |
| 3887 | B6 | 6524 | E4 | 6558 | B5 | 9001 | D4 | 9022 | G3 | 9044 | D7 | 9068 | C2 | 9089 | B4 | | | | | | | | |
| 3888 | B5 | 6530 | E6 | 6559 | D4 | 9002 | H4 | 9023 | G10 | 9045 | F8 | 9069 | E11 | 9090 | E4 | | | | | | | | |
| 3889 | B4 | 6531 | G3 | 6562 | B5 | 9003 | G2 | 9024 | D7 | 9046 | E8 | 9070 | E1 | 9091 | E1 | | | | | | | | |
| 5001 | C9 | 6535 | B3 | 6568 | F1 | 9004 | H6 | 9025 | C5 | 9047 | F10 | 9071 | F2 | 9092 | D1 | | | | | | | | |
| 5502 | D4 | 6536 | G2 | 6573 | D6 | 9005 | F4 | 9026 | D7 | 9048 | F10 | 9072 | C5 | 9093 | E3 | | | | | | | | |
| 5503 | C1 | 6541 | E2 | 6579 | D5 | 9006 | E10 | 9027 | G5 | 9049 | E8 | 9073 | G2 | 9094 | G1 | | | | | | | | |
| 5504 | F1 | 6542 | C4 | 6580 | B7 | 9007 | E10 | 9028 | G5 | 9050 | F9 | 9074 | F4 | 9095 | F4 | | | | | | | | |
| 6500 | G11 | 6543 | C5 | 6581 | A7 | 9008 | F8 | 9029 | F7 | 9053 | H7 | 9075 | E3 | 9096 | F1 | | | | | | | | |
| 6501 | F10 | 6544 | B2 | 6582 | C7 | 9009 | H4 | 9030 | G10 | 9054 | D6 | 9076 | C4 | | | | | | | | | | |
| 6502 | H11 | 6545 | B3 | 6583 | C7 | 9010 | C8 | 9031 | F9 | 9055 | F4 | 9077 | E3 | | | | | | | | | | |
| 6503 | E10 | 6547 | H8 | 6584 | C7 | 9011 | F9 | 9032 | D8 | 9056 | B6 | 9078 | C4 | | | | | | | | | | |
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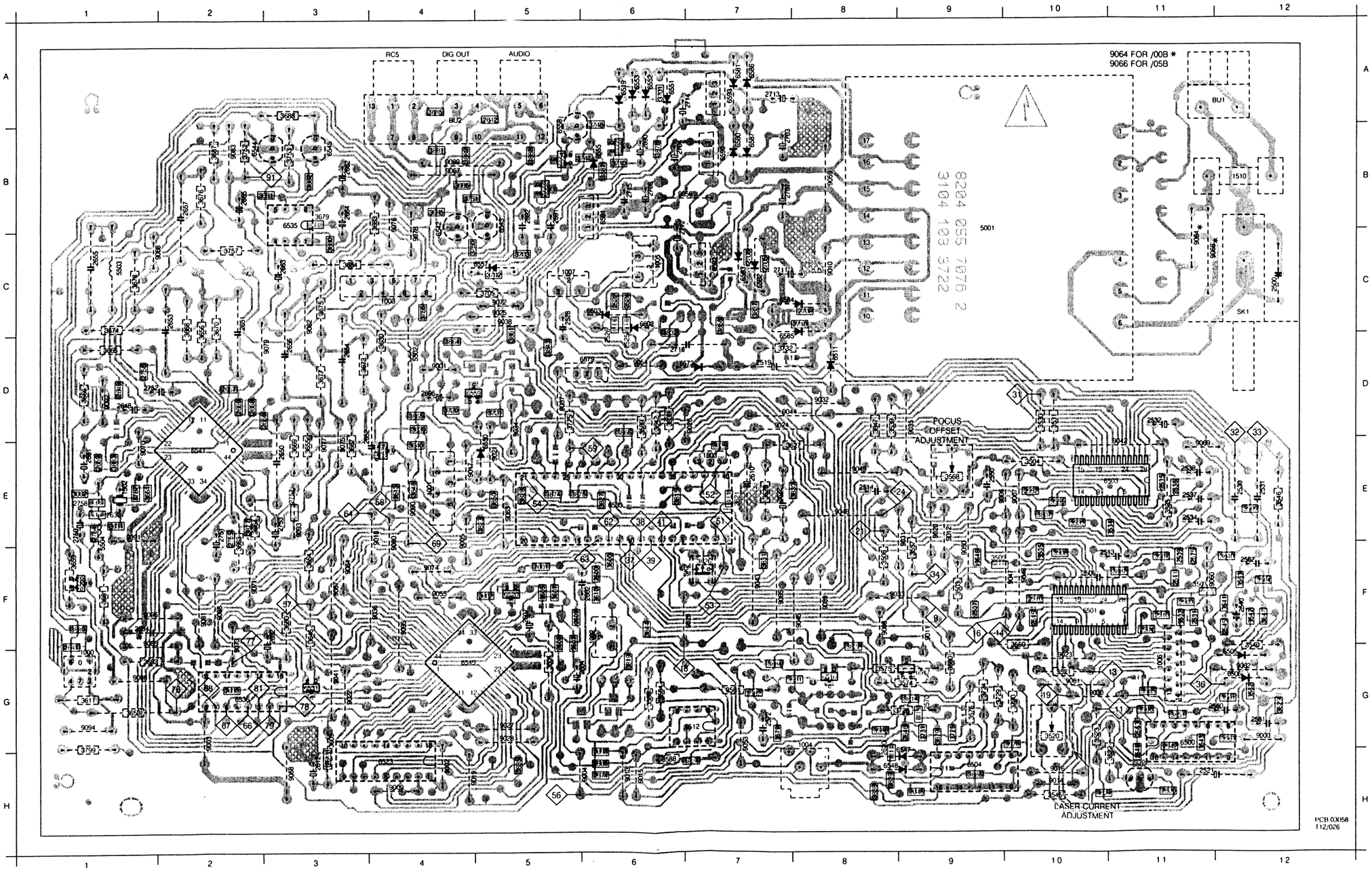
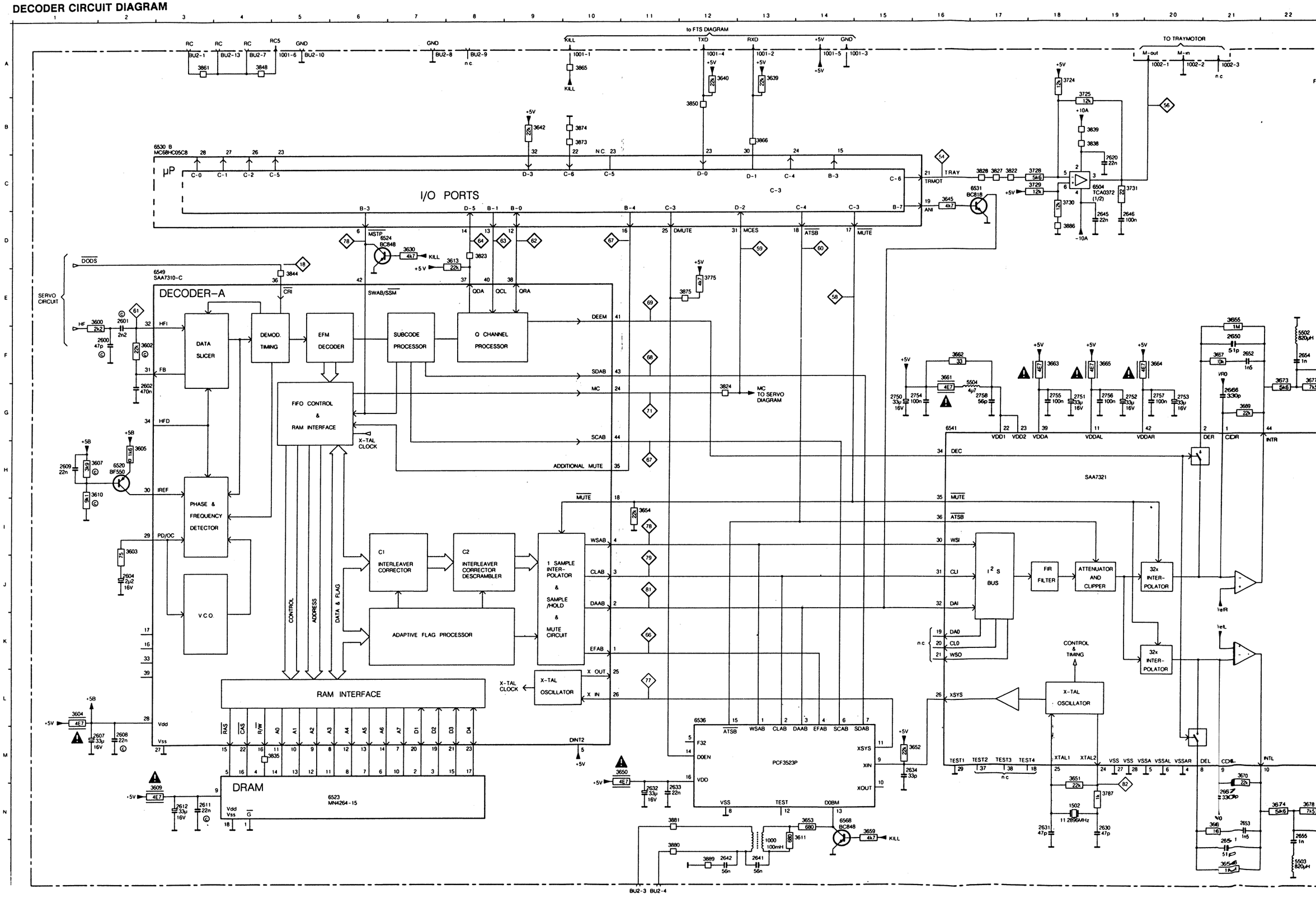


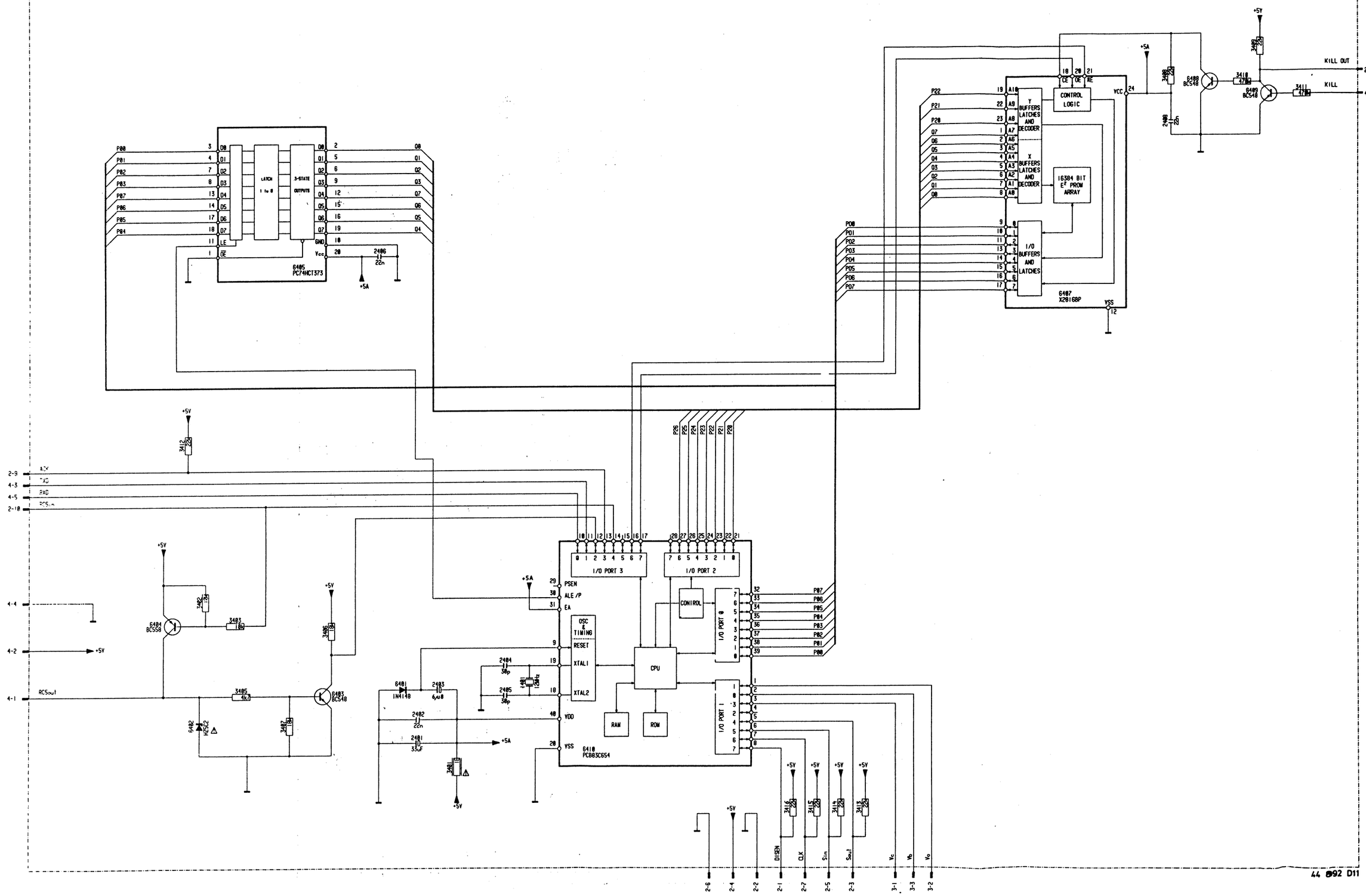
# DECODER CIRCUIT DIAGRAM



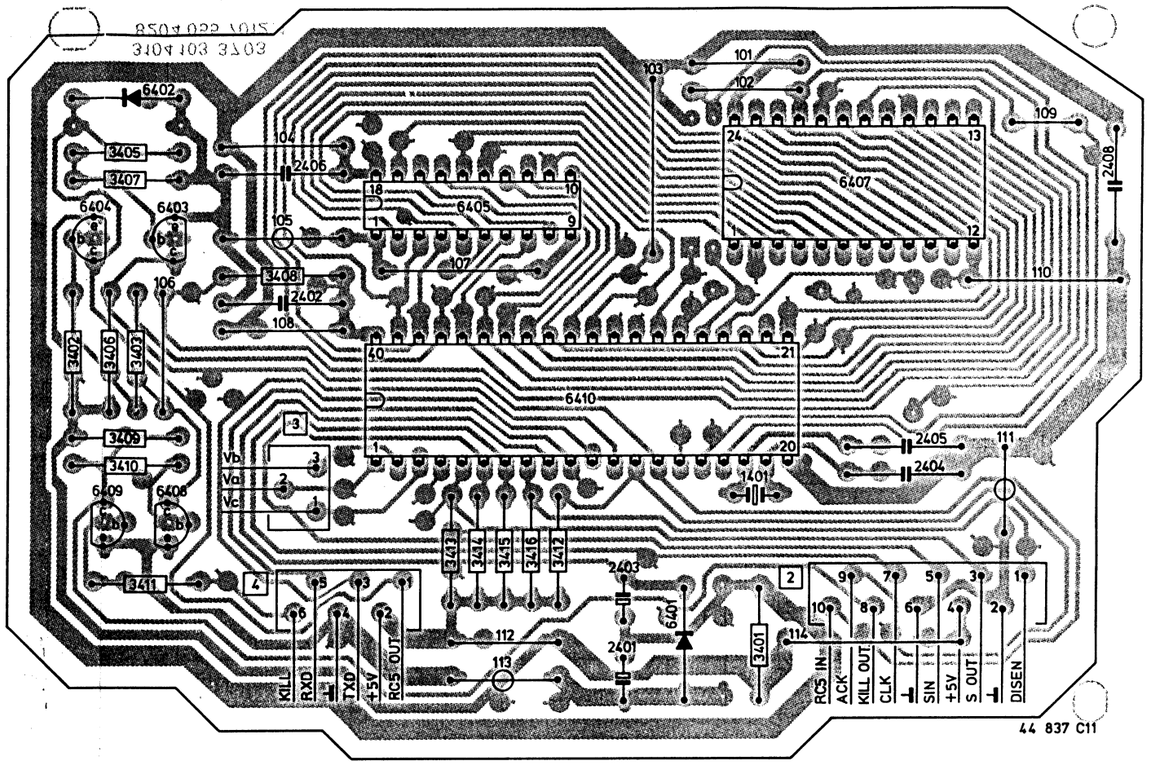
TO TRAYMOTOR
M-out 1002-1
M-in 1002-2
n.c. 1002-3
+5V GND 1001-5 1001-3
FROM POWER SUPPLY DIAGRAM ~1 ~2
TO SERVO DIAGRAM PIN 1 OF IC6530
KILL CIRCUIT
TO C2695 ON SERVO DIAGRAM
TRAY TRMOT ANI ATSB MUTE
TCA0372 (1/2)
SAA7321
I²S BUS
FIR FILTER
ATTENUATOR AND CLIPPER
32x INTERPOLATOR
CONTROL & TIMING
X-TAL OSCILLATOR
DA0 CL0 WSO DAI CLI WSI DEC XSYS
TEST1 TEST2 TEST3 TEST4 XTAL1 XTAL2 VSS VSS VSSA VSSAL VSSAR
VDD1 VDD2 VDDA VDDAL VDDAR
DER CDR INTR DEL CDL INTL
AORI- AORI+ AOR0 AOLI- AOLI+ AOL0
VRC VR0 VrefR VrefL VDDref
LSI LG +15V 15V KILL RG RSI
TO HEADPHONE PANEL
PCF3523P CLAB DAAB EFAB SCAB SDAB XSYS XIN XOUT TEST DOBM
PRS 06629 T28/023

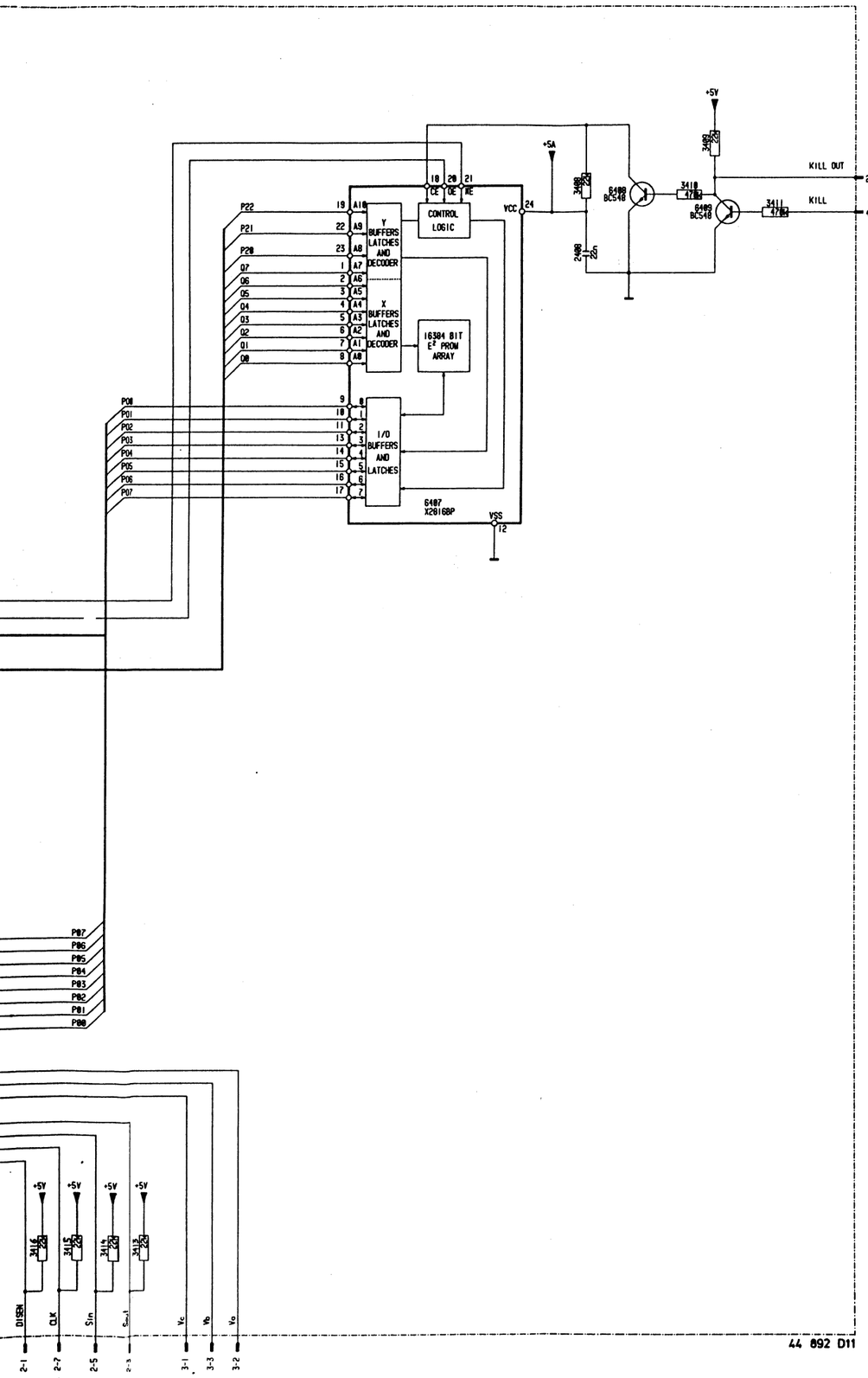
18 LOW PULSES DURING NEXT AND PREVIOUS
53 ACTIVITY WHEN USING AN IR REMOTE CONTROL
54 0V WHILE OPENING 5V WHILE CLOSING 2.5V IN REST
56 +5V WHILE TRAY IS OPENING -5V WHILE TRAY IS CLOSING 0V IN REST
61 0.5µs/DIV — EYEPATTERN 2.5V 1.3V
62 10ms/DIV — QRA PLAY POSITION ASYNCHRONOUS µP DEPENDENT
63 0.2ms/DIV — QCL 10x8BITS
64 QDA DATA
66 PULSES WHEN THE DISC IS SLOWLY BRAKED BY HAND
67 50µs/DIV 136µs
68 ACTIVITY DURING PLAY
69 AUDIO SIGNALS DISC: HIGH ON TRACK 76.78.80.82.84.86.88 LOW ON TRACK 77.79.81.83.85.87.89
74 5µs/DIV — MC SIGNAL 0V 11µs
STAND-BY POSITION 0V
BEGINNING PLAY POSITION 0V
PLAY POSITION 0V
77 11.2896 MHz SINEWAVE
78 5µs/DIV — WSAB PLAY POSITION
79 CLAB 11.34µs
81 ACTIVITY DURING PLAY
82 11.2896 MHz SINEWAVE
91 4V 1.1µs 8V 1.2s POWER ON POWER OFF

| | | |
|---|---|---|
| | 1000 O13 | 3888 K29 |
| | 1502 N18 | 3889 O12 |
| | 2600 F2 | 5502 F22 |
| | 2601 E2 | 5503 Q22 |
| | 2602 G2 | 5504 G17 |
| | 2604 J2 | 5660 K29 |
| A | 2607 M1 | 6519 B24 |
| | 2608 M2 | 6520 H2 |
| | 2609 H1 | 6523 N6 |
| | 2611 N3 | 6524 D6 |
| | 2612 N3 | 6530 B2 |
| | 2620 C19 | 6531 C17 |
| | 2630 N19 | 6535 H26 |
| | 2631 N18 | 6535 M26 |
| | 2632 N11 | 6536 L12 |
| | 2633 N11 | 6541 G16 |
| | 2634 M15 | 6542 H28 |
| B | 2641 O13 | 6543 I29 |
| | 2642 O12 | 6544 M28 |
| | 2645 D19 | 6545 M29 |
| | 2646 D19 | 6549 E2 |
| | 2648 I25 | 6550 D29 |
| | 2649 I25 | 6551 B24 |
| | 2650 F21 | 6552 C23 |
| | 2651 O21 | 6553 C23 |
| | 2652 F21 | 6554 D27 |
| C | 2653 N21 | 6556 C25 |
| | 2654 F22 | 6556 C26 |
| | 2655 N22 | 6557 C24 |
| | 2656 G23 | 6558 B27 |
| | 2657 N23 | 6559 D29 |
| | 2658 J24 | 6562 C26 |
| | 2659 K25 | 6568 N14 |
| | 2661 K24 | |
| | 2662 G26 | |
| D | 2663 M26 | |
| | 2664 H27 | |
| | 2665 L27 | |
| | 2666 G21 | |
| | 2667 N21 | |
| | 2668 J25 | |
| | 2669 J25 | |
| | 2690 B25 | |
| | 2691 D25 | |
| | 2692 D24 | |
| E | 2695 D28 | |
| | 2750 G15 | |
| | 2754 G16 | |
| | 2755 G18 | |
| | 2756 G19 | |
| | 2757 G20 | |
| | 2758 G17 | |
| | 3600 E1 | |
| | 3602 F2 | |
| | 3603 I2 | |
| F | 3604 L1 | |
| | 3605 H2 | |
| | 3607 H1 | |
| | 3609 N3 | |
| | 3610 H1 | |
| | 3611 O14 | |
| | 3613 D8 | |
| | 3630 D7 | |
| | 3639 A13 | |
| G | 3640 A12 | |
| | 3642 B9 | |
| | 3645 C16 | |
| | 3650 M11 | |
| | 3651 M18 | |
| | 3652 M16 | |
| | 3653 N14 | |
| | 3654 I11 | |
| | 3655 E21 | |
| | 3656 Q21 | |
| H | 3659 N15 | |
| | 3661 F16 | |
| | 3662 F16 | |
| | 3663 F18 | |
| | 3664 F20 | |
| | 3665 F19 | |
| | 3666 I25 | |
| | 3667 F21 | |
| | 3668 N21 | |
| I | 3669 G21 | |
| | 3670 M21 | |
| | 3673 G22 | |
| | 3674 N22 | |
| | 3675 F23 | |
| | 3676 N23 | |
| | 3677 G22 | |
| | 3678 N22 | |
| | 3679 H26 | |
| | 3680 I26 | |
| J | 3681 L26 | |
| | 3682 M26 | |
| | 3683 G26 | |
| | 3684 N26 | |
| | 3685 H28 | |
| | 3686 H29 | |
| | 3687 L28 | |
| | 3688 L29 | |
| | 3701 C23 | |
| K | 3702 C24 | |
| | 3703 D23 | |
| | 3705 D27 | |
| | 3710 D25 | |
| | 3720 D29 | |
| | 3721 D28 | |
| | 3724 A18 | |
| | 3725 B18 | |
| | 3728 C18 | |
| | 3729 C18 | |
| | 3730 C18 | |
| L | 3731 C19 | |
| | 3747 D26 | |
| | 3748 B26 | |
| | 3750 I28 | |
| | 3751 I29 | |
| | 3752 M28 | |
| | 3753 M29 | |
| | 3755 H27 | |
| M | 3757 M27 | |
| | 3775 E12 | |
| | 3787 N19 | |
| | 3822 C17 | |
| | 3823 D8 | |
| | 3824 G12 | |
| | 3827 C17 | |
| | 3828 C17 | |
| | 3830 D30 | |
| | 3835 M5 | |
| N | 3838 B19 | |
| | 3839 B19 | |
| | 3844 E5 | |
| | 3848 A4 | |
| | 3850 B12 | |
| | 3861 A3 | |
| | 3865 A10 | |
| | 3866 B13 | |
| | 3873 B10 | |
| | 3874 B10 | |
| | 3875 E12 | |
| O | 3877 H25 | |
| | 3880 O11 | |
| | 3881 N11 | |
| | 3883 K25 | |
| | 3886 D18 | |
| | 3887 D26 | |


6405
PC74HCT373
LATCH
3-STATE
OUTPUTS
6418
PCB83C654
I/O PORT 3
I/O PORT 2
I/O PORT 1
I/O PORT 0
CPU
RAM
ROM
OSC & TIMING
CONTROL
6407
X28168P
16384 BIT E² PROM ARRAY
Y BUFFERS LATCHES AND DECODER
X BUFFERS LATCHES AND DECODER
CONTROL LOGIC
I/O BUFFERS AND LATCHES
KILL OUT
KILL
6408 BC548
6409 BC548
6404 BC558
6403 BC548
6401 IN4148
6402 HS52
PSEN
ALE /P
EA
RESET
XTAL1
XTAL2
VDD
VSS
VCC
VSS
RCSout
TXD
RXD
DISEN
CLK
Sin
Sout
+5V
+5A

## µP + FTS PANEL


6402
3405
3407
6404
6403
2406
3408
2402
3402
3406
3403
6410
3409
3410
6409
6408
3411
3413
3414
3415
3416
3412
2403
6401
2401
3401
2405
2404
1401
2408
6407
KILL
RXD
TXD
+5V
RCS OUT
RCS IN
ACK
KILL OUT
CLK
SIN
+5V
S OUT
DISEN
44 837 C11


P22
P21
P20
Q7
Q6
Q5
Q4
Q3
Q2
Q1
Q0
Y BUFFERS LATCHES AND DECODER
X BUFFERS LATCHES AND DECODER
CONTROL LOGIC
16384 BIT E² PROM ARRAY
I/O BUFFERS AND LATCHES
6487
X2816BP
VCC
VSS
+5V
+5A
3408
22n
2408
6488
BC548
6489
BC548
3410
3411
KILL OUT
KILL
2-8
4-6
P00
P01
P02
P03
P04
P05
P06
P07
P07
P06
P05
P04
P03
P02
P01
P00
3416
3415
3414
3412
DISEN
CLK
Sin
Vc
Vb
Va
2-1
2-7
2-5
3-1
3-3
3-2
44 892 D11

## Servo & decoder panel partslist

| | | |
|---|---|---|
| 2500 | 4822 126 10454 | 3,3nF 20% 400V |
| 2501 | 4822 122 33809 | 22nF 20% 50V |
| 2503 | 4822 122 33809 | 22nF 20% 50V |
| 2504 | 5322 122 34099 | 470pF 10% 63V |
| 2506 | 4822 122 10166 | 22nF 30% 16V |
| 2507 | 4822 122 33175 | 2,2nF 20% 50V |
| 2509 | 5322 122 32531 | 100pF 5% 50V |
| 2510 | 4822 122 33177 | 10nF 20% 50V |
| 2511 | 4822 122 31746 | 1nF 5% 50V |
| 2513 | 4822 121 43375 | 220nF 63V |
| 2514 | 4822 121 51252 | 470nF 5% 63V |
| 2515 | 4822 122 31746 | 1nF 5% 50V |
| 2519 | 4822 124 22027 | 47µF 20% 25V |
| 2520 | 5322 126 10794 | 220pF 10% |
| 2521 | 5322 124 21643 | 22µF 20% 40V |
| 2522 | 4822 122 33809 | 22nF 20% 50V |
| 2524 | 4822 122 33809 | 22nF 20% 50V |
| 2525 | 4822 122 33809 | 22nF 20% 50V |
| 2526 | 4822 122 33809 | 22nF 20% 50V |
| 2528 | 4822 124 41799 | 220µF 20% 63V |
| 2530 | 4822 121 51321 | 8,2nF 1% 63V |
| 2531 | 4822 121 51321 | 8,2nF 1% 63V |
| 2532 | 4822 124 40272 | 33µF 20% 16V |
| 2534 | 5322 121 42661 | 330nF 5% 63V |
| 2535 | 4822 122 33342 | 33nF 10% 63V |
| 2536 | 4822 122 33342 | 33nF 10% 63V |
| 2537 | 4822 121 43375 | 220nF 63V |
| 2538 | 4822 121 43375 | 220nF 63V |
| 2540 | 4822 124 41583 | 0,68µF 50V Bipolar |
| 2542 | 4822 122 33809 | 22nF 20% 50V |
| 2545 | 4822 122 33496 | 100nF 10% 63V |
| 2546 | 4822 122 33809 | 22nF 20% 50V |
| 2550 | 5322 121 42604 | 47nF 5% 63V |
| 2560 | 4822 121 51314 | 4,7nF 5% 50V |
| 2561 | 4822 121 51252 | 470nF 5% 63V |
| 2562 | 5322 121 42661 | 330nF 5% 63V |
| 2563 | 4822 122 33496 | 100nF 10% 63V |
| 2566 | 4822 122 33809 | 22nF 20% 50V |
| 2570 | 4822 122 33175 | 2,2nF 20% 50V |
| 2572 | 5322 121 42661 | 330nF 5% 63V |
| 2574 | 4822 122 33893 | 18nF 10% 63V |
| 2575 | 4822 122 32542 | 47nF 10% 63V |
| 2600 | 5322 122 32452 | 47pF 5% 50V |
| 2601 | 4822 122 31644 | 2,2nF 10% 63V |
| 2602 | 4822 121 51252 | 470nF 5% 63V |
| 2604 | 4822 124 41576 | 2,2µF 20% 50V |
| 2607 | 4822 124 40272 | 33µF 20% 16V |
| 2608 | 4822 122 33809 | 22nF 20% 50V |
| 2609 | 4822 122 33809 | 22nF 20% 50V |
| 2610 | 4822 124 20688 | 33µF 50% 16V |
| 2611 | 4822 122 33809 | 22nF 20% 50V |
| 2612 | 4822 124 40272 | 33µF 20% 16V |
| 2620 | 4822 122 33809 | 22nF 20% 50V |
| 2621 | 4822 122 33809 | 22nF 20% 50V |
| 2622 | 4822 124 22031 | 4,7µF 20% 63V |
| 2630 | 5322 122 32452 | 47pF 5% 50V |
| 2631 | 5322 122 32452 | 47pF 5% 50V |
| 2632 | 4822 124 40272 | 33µF 20% 16V |
| 2633 | 4822 122 33809 | 22nF 20% 50V |
| 2634 | 4822 122 10179 | 33pF 5% 50V |
| 2641 | 4822 122 33485 | 56nF 10% 63V |
| 2642 | 4822 122 33485 | 56nF 10% 63V |
| 2645 | 4822 122 33809 | 22nF 20% 50V |
| 2646 | 4822 122 33496 | 100nF 10% 63V |
| 2648 | 4822 124 40272 | 33µF 20% 16V |
| 2649 | 4822 122 33496 | 100nF 10% 63V |

| | | |
|---|---|---|
| 2650 | 4822 121 51556 | 51pF 1% 630V |
| 2651 | 4822 121 51556 | 51pF 1% 630V |
| 2652 | 4822 121 42729 | 1,5nF 1% 250V |
| 2653 | 4822 121 42729 | 1,5nF 1% 250V |
| 2654 | 4822 121 50591 | 1nF 1% 630V |
| 2655 | 4822 121 50591 | 1nF 1% 630V |
| 2656 | 4822 121 51288 | 100pF 630V |
| 2657 | 4822 121 51288 | 100pF 630V |
| 2658 | 4822 122 33496 | 100nF 10% 63V |
| 2659 | 4822 122 33496 | 100nF 10% 63V |
| 2661 | 4822 124 41578 | 6,8µF 20% 50V |
| 2662 | 4822 124 41525 | 100µF 20% 25V |
| 2663 | 4822 124 41525 | 100µF 20% 25V |
| 2664 | 4822 124 22339 | 100µF 16V Bipolar |
| 2665 | 4822 124 22339 | 100µF 16V Bipolar |
| 2666 | 5322 122 31842 | 330pF 5% 63V |
| 2667 | 5322 122 31842 | 330pF 5% 63V |
| 2668 | 4822 122 33496 | 100nF 10% 63V |
| 2669 | 4822 122 33496 | 100nF 10% 63V |
| 2690 | 4822 124 41334 | 470µF 20% 35V |
| 2691 | 4822 121 51436 | 820nF 10% 63V |
| 2692 | 5322 121 42386 | 100nF 5% 63V |
| 2693 | 4822 122 33809 | 22nF 20% 50V |
| 2695 | 4822 124 41558 | 10µF 25V Bipolar |
| 2703 | 4822 124 41859 | 330µF 20% 35V |
| 2704 | 4822 124 40433 | 47µF 20% 25V |
| 2705 | 4822 122 33809 | 22nF 20% 50V |
| 2706 | 4822 122 33809 | 22nF 20% 50V |
| 2707 | 4822 124 41591 | 6800µF 20% 16V |
| 2708 | 4822 124 40272 | 33µF 20% 16V |
| 2709 | 4822 122 33809 | 22nF 20% 50V |
| 2710 | 4822 122 33809 | 22nF 20% 50V |
| 2711 | 4822 124 41853 | 1000µF 16V |
| 2712 | 4822 124 40272 | 33µF 20% 16V |
| 2713 | 4822 124 41334 | 470µF 20% 35V |
| 2714 | 4822 124 40433 | 47µF 20% 25V |
| 2715 | 5322 121 42386 | 100nF 5% 63V |
| 2716 | 5322 124 21643 | 22µF 20% 40V |
| 2750 | 4822 124 40272 | 33µF 20% 16V |
| 2751 | 4822 124 40272 | 33µF 20% 16V |
| 2752 | 4822 124 40272 | 33µF 20% 16V |
| 2753 | 4822 124 40272 | 33µF 20% 16V |
| 2754 | 4822 122 33496 | 100nF 10% 63V |
| 2755 | 4822 122 33496 | 100nF 10% 63V |
| 2756 | 4822 122 33496 | 100nF 10% 63V |
| 2757 | 4822 122 33496 | 100nF 10% 63V |

| | | |
|---|---|---|
| 3501 | 4822 051 20472 | 4,7kΩ 5% 0,1W |
| 3502 | 4822 051 20104 | 100kΩ 5% 0,1W |
| 3503 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3504 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3505 | 4822 051 20163 | 16kΩ 5% 0,1W |
| 3506 | 4822 051 10101 | 100Ω 2% 0.25W |
| 3507 | 4822 050 21002 | 1kΩ 1% 0,6W |
| 3508 | 4822 051 20243 | 24kΩ 5% 0,1W |
| 3509 | 4822 051 20562 | 5,6kΩ 5% 0,1W |
| 3510 | 4822 051 20103 | 10kΩ 5% 0,1W |
| 3520 | 4822 101 10685 | 4,7kΩ 20% 0,05W Potmtr Lin. |
| 3521 | 4822 051 10221 | 220Ω 2% 0,25W |
| 3522 | 4822 052 10189 | 18Ω 5% 0,33W |
| 3523 | 4822 052 10129 | 12Ω 5% 0,33W |
| 3524 | 4822 051 20101 | 100Ω 5% 0,1W |
| 3530 | 4822 050 24703 | 47kΩ 1% 0,6W |
| 3531 | 4822 050 21503 | 15kΩ 1% 0,6W |

| | | |
|---|---|---|
| 3533 | 4822 051 20512 | 5,1kΩ 5% 0,1W |
| 3534 | 4822 051 20224 | 220kΩ 5% 0,1W |
| 3535 | 4822 050 21203 | 12kΩ 1% 0,6W |
| 3539 | 4822 051 10223 | 22kΩ 2% 0,25W |
| 3540 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3541 | 4822 051 20682 | 6,8kΩ 5% 0,1W |
| 3542 | 4822 051 20339 | 33Ω 5% 0,1W |
| 3543 | 4822 051 20682 | 6,8kΩ 5% 0,1W |
| 3545 | 4822 111 30483 | 1Ω 5% 0,33W |
| 3546 | 4822 111 30483 | 1Ω 5% 0,33W |
| 3552 | 4822 051 20182 | 1,8kΩ 5% 0,1W |
| 3555 | 4822 051 20183 | 18kΩ 5% 0,1W |
| 3557 | 4822 050 22004 | 200kΩ 1% 0,6W |
| 3560 | 4822 050 21103 | 11kΩ 1% 0,6W |
| 3561 | 4822 051 20154 | 150kΩ 5% 0,1W |
| 3562 | 4822 051 20124 | 120kΩ 5% 0,1W |
| 3563 | 4822 051 20563 | 56kΩ 5% 0,1W |
| 3564 | 4822 051 20164 | 160kΩ 5% 0,1W |
| 3565 | 4822 051 20279 | 27Ω 5% 0,1W |
| 3566 | 4822 051 20229 | 22Ω 5% 0,1W |
| 3567 | 4822 051 20829 | 82Ω 5% 0,1W |
| 3568 | 4822 100 11193 | 22kΩ 20% 0,05W Potmtr Lin. |
| 3569 | 4822 051 20684 | 680kΩ 5% 0,1W |
| 3574 | 4822 050 13303 | 33kΩ 1% 0,4W |
| 3575 | 4822 116 52921 | 4,7kΩ 1% 0,6W |
| 3576 | 4822 050 22004 | 200kΩ 1% 0,6W |
| 3578 | 4822 051 20823 | 82kΩ 5% 0,1W |
| 3579 | 4822 051 20154 | 150kΩ 5% 0,1W |
| 3580 | 4822 116 52921 | 4,7kΩ 1% 0,6W |
| 3581 | 4822 050 23302 | 3,3kΩ 1% 0,6W |
| 3582 | 4822 051 20562 | 5,6kΩ 5% 0,1W |
| 3584 | 5322 116 53658 | 91kΩ 1% 0,6W |
| 3585 | 4822 050 21004 | 100kΩ 1% 0,6W |
| 3586 | 4822 051 20684 | 680kΩ 5% 0,1W |
| 3588 | 4822 050 24703 | 47kΩ 1% 0,6W |
| 3589 | 4822 116 52921 | 4,7kΩ 1% 0,6W |
| 3591 | 4822 051 20122 | 1,2kΩ 5% 0,1W |
| 3600 | 4822 051 20222 | 2,2kΩ 5% 0,1W |
| 3602 | 4822 051 20223 | 22kΩ 5% 0,1W |
| 3603 | 4822 051 20759 | 75Ω 5% 0,1W |
| 3604 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3605 | 4822 051 20162 | 1,6kΩ 5% 0,1W |
| 3607 | 4822 051 20392 | 3,9kΩ 5% 0,1W |
| 3609 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3610 | 4822 051 20912 | 9,1kΩ 5% 0,1W |
| 3611 | 4822 050 26801 | 680Ω 1% 0,6W |
| 3613 | 4822 051 20223 | 22kΩ 5% 0,1W |
| 3624 | 4822 051 20222 | 2,2kΩ 5% 0,1W |
| 3627 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3628 | 4822 050 22004 | 200kΩ 1% 0,6W |
| 3629 | 4822 051 20224 | 220kΩ 5% 0,1W |
| 3630 | 4822 116 52921 | 4,7kΩ 1% 0,6W |
| 3638 | 4822 051 10223 | 22kΩ 2% 0,25W |
| 3639 | 4822 051 20223 | 22kΩ 5% 0,1W |
| 3640 | 4822 051 20223 | 22kΩ 5% 0,1W |
| 3642 | 4822 051 10223 | 22kΩ 2% 0,25W |
| 3645 | 4822 116 52921 | 4,7kΩ 1% 0,6W |
| 3646 | 4822 051 20223 | 22kΩ 5% 0,1W |
| 3647 | 4822 051 10223 | 22kΩ 2% 0,25W |
| 3651 | 4822 051 20224 | 220kΩ 5% 0,1W |
| 3652 | 4822 051 10223 | 22kΩ 2% 0,25W |
| 3653 | 4822 050 26801 | 680Ω 1% 0,6W |
| 3654 | 4822 051 10223 | 22kΩ 2% 0,25W |
| 3655 | 4822 116 52235 | 1MΩ 5% 0,5W |
| 3656 | 4822 116 52235 | 1MΩ 5% 0,5W |
| 3659 | 4822 116 52921 | 4,7kΩ 1% 0,6W |

| | | |
|---|---|---|
| 3663 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3664 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3665 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3666 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3667 | 4822 050 21003 | 10kΩ 1% 0,6W |
| 3668 | 4822 050 21003 | 10kΩ 1% 0,6W |
| 3669 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 3670 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 3673 | 4822 050 25602 | 5,6kΩ 1% 0,6W |
| 3674 | 4822 050 25602 | 5,6kΩ 1% 0,6W |
| 3675 | 4822 050 25602 | 5,6kΩ 1% 0,6W |
| 3676 | 4822 050 25602 | 5,6kΩ 1% 0,6W |
| 3677 | 4822 050 27502 | 7,5kΩ 1% 0,6W |
| 3678 | 4822 050 27502 | 7,5kΩ 1% 0,6W |
| 3679 | 4822 051 20163 | 16kΩ 5% 0,1W |
| 3680 | 4822 051 20103 | 10kΩ 5% 0,1W |
| 3681 | 4822 051 20163 | 16kΩ 5% 0,1W |
| 3682 | 4822 051 20103 | 10kΩ 5% 0,1W |
| 3683 | 4822 052 10339 | 33Ω 5% 0,33W |
| 3684 | 4822 052 10339 | 33Ω 5% 0,33W |
| 3685 | 4822 051 20101 | 100Ω 5% 0,1W |
| 3686 | 4822 051 20101 | 100Ω 5% 0,1W |
| 3687 | 4822 051 10101 | 100Ω 2% 0,25W |
| 3688 | 4822 051 10101 | 100Ω 2% 0,25W |
| 3701 | 4822 051 20472 | 4,7kΩ 5% 0,1W |
| 3702 | 4822 116 82595 | 5,6MΩ 10% 0,1W |
| 3703 | 4822 051 20473 | 47kΩ 5% 0,1W |
| 3705 | 4822 050 25603 | 56kΩ 1% 0,6W |
| 3710 | 4822 051 20154 | 150kΩ 5% 0,1W |
| 3720 | 4822 051 10102 | 1kΩ 2% 0,25W |
| 3721 | 4822 051 20473 | 47kΩ 5% 0,1W |
| 3724 | 4822 050 21203 | 12kΩ 1% 0,6W |
| 3725 | 4822 051 20163 | 16kΩ 5% 0,1W |
| 3728 | 4822 050 15602 | 5,6kΩ 1% 0,4W |
| 3729 | 4822 050 21203 | 12kΩ 1% 0,6W |
| 3730 | 4822 050 21203 | 12kΩ 1% 0,6W |
| 3731 | 4822 051 20229 | 22Ω 5% 0,1W |
| 3732 | 4822 050 23902 | 3,9kΩ 5% 0,1W |
| 3747 | 4822 051 20103 | 10kΩ 5% 0,1W |
| 3748 | 4822 051 20392 | 3,9kΩ 5% 0,1W |
| 3750 | 4822 051 20122 | 1,2kΩ 5% 0,1W |
| 3751 | 4822 051 20122 | 1,2kΩ 5% 0,1W |
| 3752 | 4822 051 10122 | 1,2kΩ 2% 0,25W |
| 3753 | 4822 051 10122 | 1,2kΩ 2% 0,25W |
| 3755 | 4822 051 20103 | 10kΩ 5% 0,1W |
| 3757 | 4822 051 10103 | 10kΩ 2% 0,25W |
| 3775 | 4822 116 52921 | 4,7kΩ 1% 0,6W |
| 3787 | 4822 051 10102 | 1kΩ 2% 0,25W |
| 38.. | 4822 051 10008 | Chip jumper |

| | | |
|---|---|---|
| 5502 | 4822 157 51238 | 0,820µH |
| 5503 | 4822 157 51238 | 0,820µH |
| 5504 | 4822 157 51235 | 4,7µH 10% |
| 5505 | 4822 157 51193 | 470µH |

| | | |
|---|---|---|
| 6500 | 4822 209 72587 | TCA0372DP2 |
| 6501 | 4822 209 73234 | TDA8808T/C3 |
| 6502 | 4822 130 44121 | BC338 |
| 6503 | 4822 209 73235 | TDA8809T/C2 |
| 6504 | 4822 209 72587 | TCA0372DP2 |
| 6505 | 4822 130 34173 | BZX79-C5V6 |
| 6506 | 4822 130 34173 | BZX79-C5V6 |

## Control and display panel partslist

| | | |
|---|---|---|
| 6511 | 4822 130 31456 | BZV85-C5V1 |
| 6512 | 4822 209 83274 | NJM4560D |
| 6516 | 5322 130 42012 | BC858A |
| 6517 | 5322 130 42012 | BC858A |
| 6519 | 5322 130 30684 | 1N4002 |
| 6520 | 4822 130 42131 | BF550 |
| 6523 | 4822 209 70422 | MN4264-15 |
| 6524 | 4822 130 61207 | BC848 |
| 6530 | 4822 209 61957 | MC68HC05C8P/ZC99702 |
| 6531 | 4822 130 42675 | BC818 |
| 6535 | 4822 209 83662 | NJM5532DD |
| 6536 | 4822 209 62588 | PCF3523P |
| 6541 | 4822 209 61708 | SAA7321GP |
| 6542 | 4822 130 40958 | BC338-25 |
| 6543 | 4822 130 40958 | BC338-25 |
| 6544 | 4822 130 40958 | BC338-25 |
| 6545 | 4822 130 40958 | BC338-25 |
| 6547 | 5322 130 30684 | 1N4002 |
| 6548 | 5322 130 30684 | 1N4002 |
| 6549 | 4822 209 61759 | SAA7310GP/S5 |
| 6550 | 5322 130 30684 | 1N4002 |
| 6551 | 5322 130 30684 | 1N4002 |
| 6552 | 4822 130 30621 | 1N4148 |
| 6553 | 4822 130 30621 | 1N4148 |
| 6554 | 4822 130 42513 | BC858C |
| 6555 | 4822 130 31981 | BZX79-C3V9 |
| 6556 | 5322 130 41981 | BC848A |
| 6557 | 4822 130 30621 | 1N4148 |
| 6558 | 4822 130 44121 | BC338 |
| 6559 | 4822 130 61207 | BC848 |
| 6562 | 4822 130 61207 | BC848 |
| 6568 | 4822 130 61207 | BC848 |
| 6573 | 4822 130 34167 | BZX79-C13 |
| 6580 | 5322 130 30684 | 1N4002 |
| 6581 | 5322 130 30684 | 1N4002 |
| 6582 | 5322 130 30684 | 1N4002 |
| 6583 | 5322 130 30684 | 1N4002 |
| 6584 | 5322 130 30684 | 1N4002 |
| 6585 | 5322 130 30684 | 1N4002 |
| 6586 | 5322 130 30684 | 1N4002 |
| 6587 | 5322 130 30684 | 1N4002 |
| 6590 | 4822 209 80808 | MC78M15CT |
| 6591 | 4822 209 71579 | TY40408 |
| 6592 | 4822 209 82056 | MC7906CT |
| 6593 | 5322 130 41899 | MC7915CT |

**MISCELLANEOUS**

| | | |
|---|---|---|
| 0021 | 4822 256 30274 | Fuse holder |
| 1000 | 4822 148 80281 | Transformer for Dig. Out |
| 1008 | 4822 267 40863 | Cinch socket |
| 1010 | 4822 276 11309 | Mains switch |
| 1011 | 4822 276 12523 | Tray tact switch |
| 1502 | 4822 242 71349 | 11,2896MHz Crystal |
| 1503 | 4822 242 72527 | 4MHz Resonator |

| | | |
|---|---|---|
| 2100 | 4822 124 22027 | 47µF 20% 25V |
| 2101 | 4822 122 32444 | 33pF 5% 50V |
| 2102 | 4822 122 32444 | 33pF 5% 50V |
| 2104 | 4822 122 32863 | 22nF 80% 50V |
| 2105 | 4822 124 22027 | 47µF 20% 25V |
| 2106 | 4822 122 10166 | 22nF 30% 16V |

| | | |
|---|---|---|
| 3100 | 5322 111 91484 | 10 X 10kΩ |
| 3101 | 5322 111 91484 | 10 X 10kΩ |
| 3130 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3131 | 4822 051 10473 | 47kΩ 2% 0,25W |
| 3132 | 4822 051 10829 | 82Ω 2% 0,25W |
| 3133 | 4822 051 10102 | 1kΩ 2% 0,25W |
| 3134 | 4822 051 10621 | 620Ω 2% 0,25W |
| 3135 | 4822 051 10103 | 10kΩ 2% 0,25W |
| 3151 | 4822 052 10478 | 4,7Ω 5% 0,33W |
| 3160 | 4822 051 10829 | 82Ω 2% 0,25W |
| 3161 | 4822 051 10102 | 1kΩ 2% 0,25W |
| 3162 | 4822 051 10621 | 620Ω 2% 0,25W |
| 38.. | 4822 051 10008 | chip jumper |

| | | |
|---|---|---|
| 6501 | 4822 209 61191 | TMP47C670N-1364 |
| 6502 | 4822 209 60886 | UDN-2580A |
| 6503 | 4822 209 60886 | UDN-2580A |
| 6518 | 4822 130 30613 | BAW62 |
| 6519 | 4822 130 30613 | BAW62 |
| 6520 | 4822 130 30613 | BAW62 |
| 6521 | 4822 130 30613 | BAW62 |
| 6522 | 4822 130 30613 | BAW62 |
| 6523 | 4822 130 30613 | BAW62 |
| 6524 | 4822 130 30613 | BAW62 |
| 6525 | 4822 130 30613 | BAW62 |
| 6526 | 4822 130 30613 | BAW62 |
| 6528 | 4822 130 80849 | TLHR4499 |
| 6529 | 4822 130 80849 | TLHR4499 |
| 6530 | 4822 130 61207 | BC848 |
| 6531 | 4822 130 61207 | BC848 |

**Miscellaneous**

| | | |
|---|---|---|
| 1100 | 4822 214 51772 | GP1U521X |
| 1101 | 4822 242 71508 | CSA6,00MG |
| 1102 | 4822 130 90667 | 9-BY-02GK |
| 00.. | 4822 276 12276 | Tact switch |
| 0026 | 4822 276 20463 | Switch |

## Microprocessor and FTS panel partslist

| | | |
|---|---|---|
| 2401 | 4822 124 40272 | 33µF 20% 16V |
| 2402 | 4822 122 10166 | 22nF 30% 16V |
| 2403 | 4822 124 41578 | 6,8µF 20% 50V |
| 2404 | 4822 122 10179 | 33pF 5% 50V |
| 2405 | 4822 122 10179 | 33pF 5% 50V |
| 2406 | 4822 122 10166 | 22nF 30% 16V |
| 2408 | 4822 122 10166 | 22nF 30% 16V |
| 3401 | 4822 111 30483 | 1Ω 5% 0,33W |
| 3402 | 4822 050 21003 | 10kΩ 1% 0,6W |
| 3403 | 4822 050 21003 | 10kΩ 1% 0,6W |
| 3405 | 4822 116 52921 | 4,7kΩ 1% 0,6W |
| 3406 | 4822 116 53084 | 18kΩ 1% 0,6W |
| 3407 | 4822 116 53084 | 18kΩ 1% 0,6W |
| 3408 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 3409 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 3410 | 4822 050 24704 | 470kΩ 1% 0,6W |
| 3411 | 4822 050 24704 | 470kΩ 1% 0,6W |
| 3412 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 3413 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 3414 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 3415 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 3416 | 4822 050 22203 | 22kΩ 1% 0,6W |
| 6401 | 4822 130 30621 | 1N4148 |
| 6402 | 4822 130 34233 | BZX55-C5V1 |
| 6403 | 4822 130 40938 | BC548 |
| 6404 | 4822 130 40941 | BC558 |
| 6405 | 5322 209 11118 | PC74HCT373P |
| 6407 | 4822 209 72102 | X2816BP |
| 6408 | 4822 130 40938 | BC548 |
| 6409 | 4822 130 40938 | BC548 |
| 6410 | 4822 209 62668 | PCB83C654P/AC009 |

**Miscellaneous**

| | | |
|---|---|---|
| 1401 | 4822 242 71222 | Crystal 12MHz |

## Headphone panel partslist

| | | |
|---|---|---|
| 2201 | 5322 124 21762 | 100µF 20% 10V |
| 2202 | 5322 124 21762 | 100µF 20% 10V |
| 2203 | 5322 124 21711 | 100µF 20% 25V |
| 2204 | 5322 124 21711 | 100µF 20% 25V |
| 3201 | 4822 051 10101 | 100Ω 2% 0,25W |
| 3202 | 4822 051 10101 | 100Ω 2% 0,25W |
| 3203 | 4822 051 10103 | 10kΩ 2% 0,25W |
| 3204 | 4822 051 10103 | 10kΩ 2% 0,25W |
| 3205 | 4822 111 30508 | 10Ω 5% 0,33W |
| 3206 | 4822 111 30508 | 10Ω 5% 0,33W |
| 3207 | 4822 116 52264 | 27kΩ 5% 0,5W |
| 3208 | 4822 116 52264 | 27k 5% 0,5W |
| 3209 | 4822 051 10122 | 1,2kΩ 2% 0,25W |
| 3210 | 4822 051 10122 | 1,2kΩ 2% 0,25W |
| 3211 | 4822 050 21501 | 150Ω 1% 0,6W |
| 3212 | 4822 050 21501 | 150Ω 1% 0,6W |
| 6201 | 4822 209 82362 | NJM4556D |
| 6203 | 4822 130 40958 | BC338-25 |
| 6204 | 4822 130 40958 | BC338-25 |

**Miscellaneous**

| | | |
|---|---|---|
| 1201 | 4822 102 10398 | Potmeter 2 X 10kΩ Log. |
| 1202 | 4822 267 31065 | Headphone socket |
| | 4822 505 10571 | Hex Nut M12 X 1 |

## Variable line out panel partslist

| | | |
|---|---|---|
| 2101 | 4822 124 41527 | 47µF 20% 25V |
| 2102 | 4822 124 41528 | 100µF 20% 25V |
| 2103 | 4822 124 41528 | 100µF 20% 25V |
| 2104 | 4822 124 41528 | 100µF 20% 25V |
| 2105 | 4822 124 22339 | 100µF 20% 25V bipolar |
| 2106 | 4822 124 41558 | 10µF 20% 25V bipolar |
| 2107 | 4822 124 41558 | 10µF 20% 25V bipolar |
| 2108 | 4822 124 22339 | 100µF 20% 25V bipolar |
| 3101 | 4822 116 52437 | 5,1kΩ 5% 0,5W |
| 3102 | 4822 050 22702 | 2,7kΩ 1% 0,6W |
| 3103 | 4822 052 10229 | 22Ω 5% 0,33W |
| 3104 | 4822 052 10229 | 22Ω 5% 0,33W |
| 3105 | 4822 050 21003 | 10kΩ 1% 0,6W |
| 3106 | 4822 050 21003 | 10kΩ 1% 0,6W |

**Miscellaneous**

| | | |
|---|---|---|
| 6101 | 4822 214 51724 | DVR-3 |
| BU4 | 4822 267 30878 | Cinch socket |

**Miscellaneous**

| | | |
|---|---|---|
| 1501 | 4822 253 30009 | Fuse 160 mA /00B /05B /10B |
| 1501 | 4822 253 30217 | Fuse 300 mA /07B |
| 5001 | 4822 146 30898 | Mains transf. /00B /05B /10B |
| 5001 | 4822 146 30914 | Mains transf. /07B |

**Tools**

| | |
|---|---|
| 4822 444 60655 | Insulation cover |
| 4822 397 30184 | CD audio signals |
| 4822 397 30096 | Audio test disc 5+5A |
| 4822 397 30155 | Audio test disk 1kHZ |
| 4822 397 60141 | Audio test max diam |
| 4822 395 50145 | Torx screwdriver set |
| 4822 395 50132 | Screwdriver square |
| 4822 395 30204 | 13th order filter |
| 4822 322 40066 | Service cable (14P) |
| 4822 267 50676 | Service connector (14)P |
| 5322 130 32182 | Led green CQYG11 |
| 4822 321 21284 | Service cable (4P) |